THE CASE OF
EMPEROR FREDERICK III.

FULL OFFICIAL REPORTS

By the GERMAN PHYSICIANS

—AND—

By SIR MORELL MACKENZIE.

The German Reports Translated by HENRY SCHWEIG, M.D.

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UNITED STATES OF AMERICA.

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The Reports of the German Physicians Translated by

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TRANSLATOR'S PREFACE.

He that is without sin among you, let him first cast a stone.—JOHN VIII., 7.

In January, 1887, the Crown Prince of Germany felt the initial symptoms of the illness to which he finally succumbed on June 15, 1888.

The case from the moment that it presented symptoms of a grave character was watched with keenest sympathy and interest by the whole civilized world; and when the courageous struggle for life was finally ended there were few, it can be assumed, who did not feel that the world had lost a man who, aside from his brilliant qualities, had done much to endear himself to all who had come in contact with him.

While sorrow was still uppermost in the hearts of those who mourned his early death, and before, we may say, the earth had settled on his grave, in fact, during his life, strange rumors of professional differences and bickerings began to take form, culminating finally, after his decease, in the appearance of a report, claimed to be official, of the German and Austrian physicians who had been connected with the case. This report gave not alone the professional history of the illness from its commencement, but contained, in addition, charges of such a grave nature reflecting on the professional skill and integrity of the gentleman who had been called in consultation and under whose sole charge the case had been finally placed (Dr. Morell Mackenzie) that the impression that the Emperor had been sacrificed, as it were, to professional wrangling, gained ground. Following the report, another, in response, appeared denying not only *in toto* the allegations in the preceding one, but imputing to the German physicians methods of intrigue, unprofessional conduct and want of skill both shocking and cruel.

It is certainly very unfortunate that a controversy which should have been conducted on a purely professional basis has degenerated into crimination, recrimination, and has had introduced a vituperative element certainly not in accord with the standing of the men indulging in it.

The two publications differ more in degree than in kind, and abound in statements which we cannot characterize other than ludicrous. The assertion touching Dr. Mackenzie's want of skill in the use of the laryngeal forceps and his inability to properly reflect the light from his head-mirror is as humorous as the statement that a surgeon of von Bergmann's skill was not sufficiently well-versed in the technique of tracheotomy to insert a tube, but was compelled to accomplish it by proxy. A case is not necessarily proven by a series of abusive statements, nor do charges and counter-charges of a lax handling of truth constitute evidence that the world would care to accept. We cannot understand why physicians should depart from their subject for no other purpose, as far as we can see, than to say unkind things about their confrères, and we are loath to believe that if these reports had been written one year later that the spirit of anger would have dominated their pages to the same extent. Outside of the medical facts as accepted by both the German and the English contingent, no opinion regarding the case could, with justice, be called absolutely correct, as no one would have the temerity to question the veracity of any of the gentlemen who are on record in the case, and the most charitable construction which could be put on the reports would be that they are the outcome of conclusions too hastily arrived at by reason of a supposed question of professional skill or wounded honor. How those portions of the reports which are diametrically opposed can be reconciled on other grounds than stated above we fail to see, and it must be left to the reader to judge as to their respective merits and reliability.

It is unnecessary to dwell upon the statistics of partial or complete extirpation of the larynx. At best, they give us only the results of operations performed, and do not permit us to speak with anything approaching certainty of what the result in this case might have been. True, statistics are the only data on which to base a prognosis in cases of the kind under discussion, and we do not think that the statement that a patient's life could have been prolonged for a definite time by a certain method of procedure is one whit more temperate than the assertion, or at least, the insinuation, that the patient's life might have been saved by an early operation. Division of the larynx for the removal of benign as well as malignant growths is an operation of too recent data to enable us to speak authoritatively on the subject, more particularly as up to a very short time ago it was resorted to only as a *dernier resort*, and not under conditions favorable to a successful issue. We know of no case analogous to the one under consideration in which an operation was undertaken at a date as early in its history as when operative interference was suggested by the German surgeons, and we are not prepared to say what the result might have been. On the other hand, it is a question how prudent it would be to treat all cases of laryngeal cancer entirely by endolaryngeal measures. It seems to us that it would have been in much better taste to conduct this discussion in circles entirely professional, and to keep from the laity the harrowing details of a professional wrangle. What should have been a clear and concise statement of facts based upon the personal observations of the different members of the medical council, has become a vehicle for the ventilation of personal feeling, and a report which should have been handed down as a scientific production of great value showing, as it does, the grave errors into which men of learning and skill are sometimes apt to fall, has become an abusive document which, from a scientific standpoint, cannot be characterized other than a hollow mockery.

The pitiful exhibition of temper, which is shown in both the English and German reports, compels the reader to wade through a mass of irrelevant matter, so that he may follow the medical thread of the report understandingly. An element of personal spite, jealousy and animosity has crept into the pages, and there is perhaps no medical report of which we are cognizant into which so much matter entirely foreign to the subject has been introduced. The report of one of the gentlemen shows the possibility of giving an opinion purely professional in tone and strictly to the point. With this one exception, the bearing of the parties engaged in this controversy has not elevated the standard of the medical profession in the eyes of the general public, whose faith in the correctness and reliability of physicians' opinions was much disturbed thereby. If medical men cannot be at variance at the bedside regarding the diagnosis of disease without exhibiting petty jealousy, the interests of patients would be far better served if their cases were entrusted entirely to one person. The meeting of the English physician with the German medical advisers of the Crown Prince was the starting-point of dissension which, from that moment, steadily grew and flourished. Subsequent events prove beyond peradventure that some of the suggestions made from time to time would, had they been followed, have redounded to the benefit of the illustrious patient. It is to be hoped for the sake of professional honor, if not of common decency, that the publication of the secrets of the bedside will not again become public property, and that professional men, whose sole aim should be to do that which will best serve the interests of their patients, will not so far forget themselves as to lose sight of the main issue in the endeavor to belittle each other in the eyes of their confrères and of the whole world.

HENRY SCHWEIG, M. D.

NEW YORK, *November* 15, 1888.
26 East 20th street.

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PART FIRST.

THE REPORTS OF

THE GERMAN PHYSICIANS.

CHAPTER I.

REPORT OF DR. E. GERHARDT, PROFESSOR AT THE ROYAL UNIVERSITY, AND MEDICAL PRIVY COUNCILLOR, IN BERLIN.

THE BEGINNING.

His Imperial and Royal Highness, the Crown Prince of the German Empire and of Prussia, was attacked in January, 1887, by a persistent and progressive hoarseness. The stubbornness of the ailment could be explained by the fact that His Imperial Highness had occasion to use his voice frequently, and that therefore those measures calculated to guard the voice against the influence of cold were neglected. The ailment is said to have commenced with symptoms of an ordinary cold, and the diagnosis of catarrhal hoarseness was accepted at the time. During the following months there was neither cough nor any catarrhal manifestation, only a dry hoarseness. The various remedies usually of benefit in cases of catarrh, as well as the employment of inhalations, gave entirely negative results.

On March 6, 1887, in conformity with the wish expressed by Dr. Wegner, I made a laryngoscopic examination. The vocal bands showed moderate but general redness. During the respiratory act there appeared plainly on the edge of the left vocal band, between the vocal process and its middle third, a trifle nearer to the former, a pale and apparently uneven projection. The length appeared to be about 4 millimetres, the height about 2 millimetres. During phonation, the bands approximated closely, and at the point aforesaid there projected an elongated, low, pale red nodule, which encroached on the vocal fissure.

During the respiratory act the bands moved freely from the median line, and the whitish-red projection became again visible in its entirety. This projection followed the movements of the vocal bands freely, *i. e.*, no rigidity or difficulty of motion was apparent. The hoarseness seemed dependent on the encroachment of the new formation on the vocal space, interfering with the proper vibrations of both vocal bands. The diagnosis of polypoid thickening of the left vocal band was made. Therapeutic measures were necessary to remove the growth. The next few days were occupied in educating the throat of the noble patient to the introduction of sounds and instruments. The use of cocaine to facilitate this was well borne, even in the strong solutions of 10 and 20 per cent. The narrowness of the glottis, as well as painfulness of the tongue on manipulation, and a few smaller obstacles, required time and patience to conquer. The first attempt to remove the growth by means of a wire snare slightly bent to the right, with which it was proposed to operate, resulted only in the removal of a small, white lamella from the surface of the growth, having the same characteristics as the growth itself; that is, a slight hardness to the touch. Later attempts to remove the growth with the aid of a circular knife were negative in their results, the hardness, smoothness and flatness of the new formation making this procedure useless. This led to the selection of the galvano-cautery as the destructive agent to be employed.

On the morning of the 14th another careful examination was made by sunlight. On this occasion a sharp line of demarcation between the edge of the vocal band and the growth was clearly discerned. In addition to this, there appeared immediately below the edge of the vocal band, at the place above-mentioned, and immediately anterior to the vocal process, a flat, uneven elevation, having its origin at the inner portion of the vocal band, visible only during respiration. The vocal fissure during phonation appeared uneven at this point. The color was whitish-red, the surface not smooth. On the evening of the 14th the incandescent platinum wire was first employed. Examination revealed a white eschar, the band reddened in its entirety. There was an immediate improvement in the voice, followed by slight hoarseness, and then permanent improvement. In the evening and on the following morning there was slight pain on deglutition.

On the 16th the growth was cauterized in its entirety, with special reference, however, to its centre. As a result, improvement of the voice was noted. The cauterization gave little pain. On the 18th the growth appeared much flatter, separated in the centre by a groove, pale red in color, the vocal bands slightly reddened at their margins, and no motor disturbance of the left vocal band, the voice showing marked improvement. From the 18th to the 26th, treatment was suspended on account of the birthday celebration of His Majesty, the Emperor William.

On the 26th, the growth appeared whitish in color, flat, with some elevations, and now in length about ½ cm., and smooth on the surface. During phonation it encroached on the posterior commissure. From this day on, on the 26th, 27th, 29th and continuing daily until April 7, daily destructive cauterizations with the incandescent wire were practiced, and all projections were removed by cauterization. On the 7th the edge of the vocal band was cauterized and smoothed by a flat burner. Examinations on the 8th and 9th, by sunlight, showed moderate redness of the left vocal band and slight concavity at a place corresponding to the anterior portion of the growth, which had entirely disappeared, showing at its former site an uneven, reddish, granulated surface at the edge. The general condition of the patient was splendid, no cough, no expectoration, the voice still hoarse, but much more resonant than formerly, and better in the morning than in the evening. The pain on deglutition spoken of above, and which only appeared occasionally, was now continuous; it is true only slight, and its existence only established on questioning the patient, but still an evidence of a pathological condition. The noble patient at the time felt as if he had almost entirely recovered.

Preceding the first examination, Dr. Wegner had projected a stay in Ems for his patient, to give his voice, which had been much taxed, a few weeks' rest, a proceeding which could only be praised. When this subject was again broached by Dr. Wegner in the beginning of April, and the day of departure decided upon, the advisability of destroying every vestige of the growth urged itself upon us. The stay in Ems could have nothing but a beneficial effect upon the wounded surface, which would result from further surgical interference. On the 13th the departure took place. On the 7th the growth had been removed, and on the succeeding days the surface appeared smooth and even, although the process of repair did not seem to go on. To guard against any possible infection, inhalations were used from the beginning of April, the medicament employed being a solution of 1 in 2000 of bichloride of mercury, and chloride of sodium. The journey to Ems, however, had a still further significance. In the beginning of April, I had misgivings regarding the nature of the growth. At that time we were constrained, in spite of its rather unusual appearance and location, to look upon and treat it as benign. Its removal was called for. No one at the time would have been justified in standing idle and allowing the new formation to grow and enlarge. Prompt removal was necessary. If it proved benign, the patient would be cured. If malignant, the fact would be established by its prompt return. Now, the growth was destroyed, and it behooved us to watch whether, with absolute rest and under the most favorable surroundings, there would be a return of the evil. The journey to Ems would determine this.

The Diagnosis of Cancer.

Benign tumors of the vocal bands, polypi, so-called fibromata, papillomata, adenomata, etc., develop, in the majority of cases, at the anterior third of the vocal bands. The seat of the growth in question called for special notice. Papilloma or papillomatus growths appear mainly at this site. If this growth were benign, the inference was that its correct appelation would be papilloma. According to the classification of Oertel, it belonged to the second form of papilloma. The appearance of the growth, however, was different from that of the ordinary papilloma. It was broader, intimately connected with the edge of the band, was more a thickening than an excrescence of the interior of the vocal band. During the use of the galvano-cautery the surface appeared hard, broken in an uncommon manner, and presented appearances such as I had in frequent examinations of benign tumors failed to witness; every day showed some change in appearance. I, however, continued my work under the impression that I was dealing with a benign tumor. When the ordinary snares and knives failed by slipping from the surface, and when that which the incandescent wire destroyed in one day re-appeared in part on the following, my doubts were aroused. Once, before the birthday of the Emperor, I had destroyed the larger part of the growth with the cautery, and eight days later the growth was larger than before. The task now before us was by daily cauterization to thoroughly destroy the growth, until the vocal band lay before us in its normal shape. This was done from March 29 to April 7. But the resulting open surface neither healed nor suppurated; it simply remained an open surface. Benign growths of the larynx may grow again, but only subsequent to the healing process following cauterization, when, in a longer or shorter period, a return may take place. This case differed. Under the slough the growth returned at once. So, in the beginning of April, my fears had been already aroused. We had before us a patient at the age in which cancer of the larynx most frequently occurs, a growth which looked differently and acted differently from a benign tumor, and reminded one of cases of carcinoma. My doubts in the matter were not kept from the physician, Dr. Wegner; on the contrary, they were mentioned to him seriously. Doubts they were, it is true, but strengthened by many collateral facts. But it was necessary to see clearly in the matter, and to find corroborative evidence of either one or the other form of disease, let us say polypus or cancer, without delay, and to decide according to the facts before us. I then expressed the opinion that, after a rest of a few weeks in Ems, we should be able to judge whether the base of the growth had healed or not, and whether a new growth was developing. I opined that after two weeks we could arrive at a certain diagnosis, and gave a carefully written list of the places where I could be found during this time.

A still further diagnostic point was to be a factor in the decision. The development of cancerous growths of the vocal bands, even at an early period, leads to more or less rigidity, so that the bands become weak and restricted in their movements to a much larger degree than the appearance of the growth would lead one to believe. Up to this time, this symptom was absent; both bands moved equally well. If, with the re-appearance of the growth, the mobility of the left vocal band became impaired out of proportion to its physical character, the existence of a malignant growth could be assumed.

The newspaper reports from Ems were not reassuring. A few days prior to the return of our noble patient I received word from Dr. Wegner that the presence of a laryngologist had been demanded. I took this occasion to visit the gentleman aforesaid and again to call his attention to the gravity of the situation, and to beg him at the same time that, in case the growth had re-appeared, which I inferred from the newspaper reports, or if the vocal band had become more rigid, to concur with me in my opinion that only a surgeon should be called in consultation. Any number of laryngologists might be consulted, but a surgeon would be, provided the diagnosis was correct, the only one whose interference would be at this stage of any avail. Staff-physician Dr. Schrader, who happened to be present at the time, supported me in my opinion that it would certainly be proper to guard ourselves against subsequent blame in the matter, *i. e.*, that we had only then recognized the disease when it was too late to remedy it even surgically.

We went over the history of our noble patient very carefully, to discover, if possible, any point of departure for his present illness. Dr. Wegner assured us that anything which might have been attributed to any infectious trouble (a subject touched upon later by persons not properly informed) could be excluded. The neck showed no glandular enlargements; the pharynx showed a slight catarrhal tendency, and there were no signs of scars anywhere visible. In a word, there was no ground on which to base any such suspicion as before mentioned.

Could this be a case of tuberculosis? This rarely leads to large laryngeal growths, and our noble patient had not had fever, nor cough. His lungs were in normal condition, and he was the picture of health. This could also be excluded. This narrowed the field to the diagnosis of either benign or malignant laryngeal growth, namely, polypus or cancer. I confess that for weeks my forebodings had been decidedly gloomy. I could not dismiss the thought of cancer. The distressing fears that had disturbed me for many sleepless nights I at last determined to dispel. I formed a resolution that if, after weeks of rest at Ems, the tumor grew rapidly, and the mobility of the left vocal band became impaired, then I would give the decisive word, but firmly and without reservation.

On April 13, our noble patient had left for Ems. On May 15 he returned to Potsdam. On this day the voice was much worse than before, the growth decidedly larger. It formed a marked convexity on the upper portion of the vocal band, and was covered with an injected, reddened mucous membrane. At its inner surface it appeared flat, uneven, and grayish-red, the open surface left after the cauterization showing no tendency to cicatrization. Its posterior boundary was separated from the vocal process by a fissure more marked than appeared at the previous examination. The movements of the left vocal band were decidedly more sluggish than those of the right one. My worst fears had been realized. I did not conceal from our noble patient the fact that the growth had again appeared. He expressed the wish that treatment with the galvano cautery be immediately continued. I begged for delay; begged that in conformity with previous instructions one or more laryngologists be present, mentioned the four most prominent specialists in this branch in Berlin, and then added my request that a surgeon, namely, Privy Councillor von Bergmann, be called in, as the tumor with which we had to deal was of a nature in which the judgment of a surgeon would be desirable. This proposition was accepted, and the selection of a laryngologist postponed until Dr. von Bergmann's opinion had been added to ours. To Dr. Wegner was assigned the matter of calling von Bergmann into consultation. I did not speak with him regarding the case, and neither had nor looked for any means of determining his view of the case. He made an examination on the 16th, and promptly suggested that on account of the possibility of malignancy, at any event, on account of the persistent reappearance of the growth, a division of the larynx and a thorough extirpation of the new formation was indicated. After the consultation, Dr. Wegner again broached the matter regarding consultation with a laryngologist. Numerous names were mentioned, Wegner suggesting Dr. Mackenzie, von Bergmann and I concurring, as we found the laryngoscopic appearances and the history of the case so clear, that any one with any knowledge of laryngoscopy would necessarily concur in our opinion. The correctness of this supposition did not seem open to doubt after the 18th. On this day a most important consultation took place, to which there were sent by His Majesty, the Emperor, His Excellency, von Lauer, and Privy Councillor Tobold. There were also present Drs. Wegner, Schrader, von Bergmann and I. Privy Councillor Tobold made a careful laryngological examination, and said, after we had repaired to the consulting-room, that every other diagnosis could be dismissed, the case being clearly one of cancer. The other consultants concurred in this opinion, and an early opening of the larynx and removal of the growth was recommended.

The diagnosis of cancer made on the 18th by the above-named six physicians was based on:

1. The rapid recurrence of the growth.
2. Its hardness and uneven surface.
3. Absence of process of repair at its inner surface.
4. Impaired mobility of the vocal band.
5. On the certainty with which tuberculosis and other infectious diseases could be excluded.
6. On a train of co-existing circumstances.

Among the latter might be mentioned the age of the patient, the seat and appearance of the growth, the circumstance that destruction of the surface resulted neither in suppuration nor in the healing process, and in also a number of etiological factors and diagnostic observations peculiar to the case.

The diagnosis in this case was arrived at so much earlier in its history than in the majority of instances, and seemed to be as soundly based on data as was possible at this stage—at any rate, it appeared so certain that the consulting physicians were all ready to take upon themselves the responsibility of any results that might follow from interference based upon their opinion.

Although it is a fact that a number of cases of sarcoma of the larynx[*], and one of carcinoma of the larynx[†], were removed by way of the mouth and cured, there appeared no possibility of a cure by way of the mouth in this case, if we accepted the diagnosis of cancer; as the attachments of the growth were such as to assume that its boundaries were not very clear, and as it appeared to spring from the deeper portions of the vocal band, to say nothing of its flatness. In this case, all thoughts of an operation by way of the mouth were dismissed, the proper operative procedures being those laid down eighteen years ago by Desormeaux. The necessity of dividing the larynx was apparent. This to-day, with our many appliances and aids, is an operation almost without danger, frequently resorted to where there are benign tumors, and in the cases of patients of advanced years as well as of children. Only in this way would it be possible to thoroughly root out the laryngeal disease in all its ramifications, and leave no germ of the former evil. The diagnosis of the physicians had, at an early date, determined the nature of the ailment. The surgical contingent had the most favorable case to deal with: That of a man of splendid physique, with the strength of a giant, in whose case the task set was to remove a small growth of the diameter of half a centimetre, from the larynx. The seat of the growth, which projected from the edge of the vocal band, would facilitate its removal materially. There are no statistics which would do justice to the probabilities of the favorable issue that might be expected in this case founded upon such favorable data, for in no instance was the disease recognized at so early a date, at its inception I may say, and in no instance was the constitution of the patient so robust. All aids to success stood at our command. It was a question at the time whether the operation, which was necessary, should not be confined to the soft tissues alone, or whether it would be necessary to remove a small portion of the thyroid cartilage. Serious doubts existed on this point. The voice would certainly be impaired by the removal of the larger part of the vocal band. But what is the voice in comparison to life! Withal, it might be expected, as in analogous cases, that a hoarse though loud voice might be retained.

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[*] *Sidio, "oesterreich med. Jahrbuch X. Schech, v. Ziemssen's Archiv XVI."*

[†] *B. Fraenkel. v. Langenbeck's Archiv Bd.* 34 S. 281.

On the evening of the 20th all preparations for the operation, even to the minutest details, had been made. On the following forenoon the operation was to take place.

In Contradiction.

In Ems the services of a laryngologist were first suggested, as rumor has it, by the physician then and there in charge of the case. When I, according to instructions, had named four of our local laryngologists, the matter was postponed until after von Bergmann's consultation. At the consultation on the evening of May 16, Dr. Wegner suggested Mackenzie, while we spoke of others. We finally accepted Mackenzie. He came for consultation on the evening of the 20th, there being present all the physicians who had previously consulted. Mackenzie was given a detailed report regarding the previous history of the case, as well as observations and opinions. He made an examination and declared at once that he did not take this to be a case of cancer, the entire appearance of the tumor being anything but cancerous, and he would be opposed to an operation such as the one proposed until microscopic examination of a piece of the growth demonstrated clearly its cancerous nature. The postponement of the operation until the microscope should decide was agreed upon. Mackenzie was entrusted with the task of removing a specimen, Virchow being decided upon to make the microscopic examination. On the morning of the 21st Mackenzie removed a small piece of tissue. Immediately after this I noticed a slight loss of substance of the mucous membrane at the upper portion of the left vocal band, near the outer margin of the growth. At the base of this place there lay denuded yellow elastic tissue. Virchow's examination revealed irritative processes, but there was an isolated nest of concentric epithelial cells (a cell-nest in fact), in the midst of prolifierating epithelium. Even at that time he gave his opinion orally that the case might be one of pachydermia laryngis. It was urged as an objection that the specimen was not taken from the growth proper. Mackenzie, therefore, endeavored to secure a further specimen. On May 23, in the evening, at Potsdam, he again introduced the cutting-forceps. I saw him take the forceps from his breast-pocket, introduce it without previous cleansing, and that during its introduction the illuminating rays which he projected on the laryngoscope from the head-mirror deviated to one side, illuminating the cheek of the illustrious patient instead of the mouth. The forceps were withdrawn empty. He did not care to operate any further that day. I made an examination at once, and found both vocal bands much reddened, the right one in its entirety ecchymosed, and at the edge of the right vocal band, a little in front of the middle third, a blackish-red swelling projecting into the glottis. I begged Dr. Wegner, asking him not to mention the circumstance, also to make an examination. He did so, and assured me he could find nothing. We repaired to Mackenzie's room, and I there told him that he had grasped the until then healthy right vocal band instead of the left one with his strong forceps, and had bruised and torn it. He answered, "It can be," and then spoke of his immediate departure. We suggested that he should at least remain in Potsdam over night, and Dr. Wegner mentioned to him the name of a military surgeon who might assist at tracheotomy, if it became necessary.

The noble patient was from this date, until quite a time after his visit to England, voiceless; had pain during the succeeding days on both sides of the neck, and a feeling of obstruction. This is perhaps the first well-authenticated case in which a laryngologist, through carelessness, endeavored to tear a piece out of a healthy vocal band. The illustrious patient, who formerly, though hoarse, was never voiceless for more than three hours, was from this time on and for many weeks, namely, until July 8, without voice; and later, in England, it was looked upon as a triumph of medical skill that his hoarse voice was restored to him! On May 25, there was again a medical consultation, at which Drs. von Bergmann and Tobold became convinced that the right vocal band had received an injury in its centre. On the 28th this injury had so far changed that the redness of the vocal band had diminished, and that at the point of injury a yellow, blunt projection encroached on the vocal fissure. On June 1, there was a loss of substance at the right vocal band, appearing yellow and purulent, the length being 3 to 4 millimetres, breadth 1 to 2 millimetres. From Landgraf's reports the injury could be looked upon as repaired on June 29.

On May 24, Dr. Wegner and I met in consultation with Mackenzie in Potsdam. In certain circles the report was already current that Mackenzie had promised the family of the noble patient to cure the malady radically in a few weeks without operation. To the attending physicians he had not said one word touching the subject. I therefore urged him, on the evening of the day of our meeting in his room, to outline for us his plan of treatment. His response was, and this Dr. Wegner wrote down at the time, that the tumor must be removed by the cutting-forceps, following which the galvano-cautery was to be applied; or that the same result might be obtained from the continued use of the galvano-cautery. He further stated that he preferred the former method; and, following out this course, he would, in time, fully restore the voice. In response to my question as to whether he could assure us that this would be so, he answered, "Yes, with certainty," and then added, after a pause, "humanly speaking."

On the 25th another general consultation was held, in which it was determined that Morell Mackenzie should remove the tumor with the cutting-forceps and the incandescent platinum wire, as he assured us of his ability to accomplish this, and, furthermore, that the voice would be entirely restored. His assurance was, perhaps, not as emphatic as on the day previous. Von Bergmann, on this occasion, stated very decidedly that, according to his view, the neoplasm was of the malignant order. Tobold expressed his doubts as to the practicability of removing the tumor in its entirety with the forceps, and that it would be only a question of time when a cutting operation would be required, and sounded a note of warning against too frequent operative interference, as this would tend to stimulate the growth of the tumor. I declared at the time that I did not believe that the tumor could be removed by way of the mouth, but that if Mackenzie assured us of his ability to do so he might proceed, but only until such time when the tumor should prove, on microscopic examination or through the history of the case, to be malignant. Morell Mackenzie, of his own accord, stated that he would operate according to the manner explained by him until the removal of a portion of the growth proved its malignancy, or until such time as the growth should recur.

Commencing on the 23rd, and in accordance with the expressed wish of Mackenzie, Dr. Wegner used daily insufflations of a powder composed of morphine, bismuth, catechu and sugar. We saw the cancer grow and blew in an innocent powder! Great faith in Mackenzie's promises was general. It is a peculiarity of laryngeal cancer that for a long time it remains a local ailment, and the general health is unimpaired. The world was pleased with the good appearance, the strength and apparent vitality of the noble patient; and those who claimed that the ailment was a slight one, unattended by danger, gained the approbation of those who were not informed as to the true state of affairs.

My last careful examination was made on June 1. The growth was then larger, still suppurating at its inner surface, its posterior line of demarcation more clearly and deeply marked against the vocal process, and at this point the inequality and destructive process began to encroach upon the posterior wall. The left vocal band was, as at former examinations, less freely movable than the right one. The pain was intermittent, but there was no difficulty in breathing. Dr. Morell Mackenzie, who, in the meanwhile, had gone to England and returned, again extirpated on June 8 two pieces of the growth in Potsdam. On this occasion he found means to keep such an inconvenient witness as I was away. The examination of Prof. Virchow revealed an epithelial proliferation, with papillary process (erroneously called papilloma), pachydermia verrucosa. He expressed, however, his doubt as to the propriety of accepting his opinion as to the growth in its entirety, as this could not be given with any degree of assurance from the examination of the two pieces furnished him. This opinion was read at a general consultation held on June 10, and, at Mackenzie's desire, made public. At this consultation von Bergmann gave it as his decided opinion that climate had no bearing on the progress of a case such as the one under consideration.

Mackenzie assured us that the climate of the Isle of Wight would hasten the healing process. Our words were useless. The journey to England had been decided upon. How the decision was arrived at, only Mackenzie knew, none other of the attending physicians. At a consultation in the house of Dr. Wegner on June 1, at which von Lauer, von Bergmann, Schrader and Tobold were present, it was resolved that, as the journey to England could not be prevented, two wishes should be expressed: First, that all portions of the growth, which should be removed, were to be sent to Virchow for examination; secondly, that the treatment in England should be under the control of a German physician well informed in laryngoscopy.

At that time public opinion leaned strongly, and was shared also by the medical faculty, toward the view that the German physicians had erroneously diagnosed cancer, and had planned a bloody and destructive operation; that, however, Mackenzie had saved the life of his noble patient by promising him results which made such an operation unnecessary. The whole power of the press was made use of to spread this opinion. What was the growth if not cancer? According to Mackenzie, it never was cancer. At various times he denominated it as a wart without a root, as papilloma, as laryngitis, as perichondritis, or as laryngitis and perichondritis. He never gave us a clear, tangible diagnosis; only in his denial of cancer was he firm. The reasons which Mackenzie gave for not accepting the diagnosis of cancer were as follows: First, that the tumor did not look like cancer. Against such a reason no argument can be used. Secondly, that a portion of the growth must show microscopically its cancerous nature. In those diseases the causes of which are clearly established and are apparent in every microscopic section, such an opinion might be accepted, as, for instance, in tuberculosis, actinamycosis, and anthrax. Such general dissemination of pathological products has, up to date, not yet been established in cancerous growths. The very laudable efforts to discover a specific germ of cancer, which stands in causative relation thereto, has, up to date, led to no recognized results. Our position to day regarding the diagnosis of cancer is at that point at which tuberculosis was before Koch's discovery of the tubercle bacillus. A tumor may, as stated in the classic case mentioned by Virchow in his work, vol. 1, page 349, consist mainly of harmless proliferating tissue, containing carcinomatous tissue in only one small portion. Still, the history of such a case proves, as in the above instance, that, although the anatomist may declare the growth benign, as, for instance, fibroma, it may still be malignant. It is of rather common occurrence that cancerous growths are surrounded by smaller benign hypertrophies. Virchow bore this in mind when he in every instance declared that only the portion examined by him was not cancerous. Mackenzie concluded, and that erroneously, that Virchow's examinations were proof that the whole tumor was non-malignant. He wrote on June 1 to the editor of the German *Revue*, for the purpose of publication: "I am happy to be able to state to you that the microscopic examinations of Prof. Virchow have established beyond a doubt that the disease is not cancer." He must have known that Virchow possibly examined only little processes of the growth, and that a malignant nucleus might be there. The history of the case had been clearly described to him, and should have commanded a certain amount of consideration, which it did not receive.

On the occasion of the last consultation, when we stated to Mackenzie that the tumor had enlarged, was encroaching upon the posterior wall, that the motion of the left vocal band was not sufficiently free and was more sluggish than the right one, his answer was: "I cannot see this." Later, he wrote, in a report published in San Remo, that the impaired mobility of the left vocal band had already been diagnosed in Berlin. Is it possible that he, too, recognized this fact in Berlin?

For a time the report was current and accepted that the disease in question was not cancer, but pachydermia verrucosa laryngis. This was based on the report of Virchow's examination of small pieces of the growth. This was of little use, for such a thing as a clinical history of this disease does not exist. Neither in the work on tumors by Virchow, nor in Mackenzie's "Diseases of the Larynx," nor in any other work could a word touching this disease be found. All that had at the time been written on the subject was a dissertation by Hünermann (Berlin, 1881), which, like the paper by Virchow, read later, gave positive points only as far as the anatomy was concerned. Besides, there were three reasons against accepting this opinion.

First, pachydermia is essentially a disease of the drunkard. This could be dismissed at once in this case. Secondly, pachydermia is, in nearly all instances, bilateral. This was acknowledged by Jürgens, who first described the disease at a meeting of the physicians of the Charité, held March 29 of this year. In the case before us, the ailment was for many months confined to one side. Thirdly, pachydermia is a disease which progresses slowly, while in this case its rapid growth was a marked feature from the first. In conclusion, the opinion of Mr. Lennox Browne must not be forgotten, to the effect that the evil was primarily benign in its character, but was made malignant through irritating operative interference, more especially through my galvano-caustic treatment. The full doctrine of this transformation is believed in by few. The statistics of Felix Semon show that in 8,300 cases of benign tumors, only 40 were said to have degenerated into malignant ones—said to have. Most people would see in this the statistics of human diagnostic errors, not of transformations and degenerations.

In every case of a small, new formation at the edge of the vocal band, where its character has not been clearly determined, it becomes a duty to resort to removal at once. What physician would stand idly by with folded arms and allow it to grow and not interfere, so that he might not make it malignant! If such a neoplasm is destroyed and recurs with alarming rapidity, then, of course, it would be wrong to delay division of the larynx, so that free access could be had, to extirpate it root and branch. Does Lennox Browne mean to insinuate that the galvano-cautery has the peculiar property of transforming polypus into cancer even more quickly than Mr. Mackenzie's forceps, which, in this case, were guilty of inflicting gross injuries on the larynx? Granted that it were proven that with more or less frequency, say in one-half per cent. of the cases, as Semon's statistics seem to indicate, benign tumors did degenerate into cancer, still this would not be any proof that certain methods of treatment have any influence on this process, either for or against, and still less that this obtains in the case before us. It is a trebly unsupported assertion, which was here given to the public.

The Journey to England.

The journey to England was to have for its object (having been planned, as stated, without the knowledge of the attending physicians and against their advice), according to Mackenzie, the effect of the healing properties of the air of the Isle of Wight on such diseases as the one affecting our noble patient. The decided opinion of von Bergmann that climate had no effect whatever on such processes, that benign as well as malignant laryngeal growths could be as well treated here as in any part of England, was answered by Mackenzie with a simple negative as to von Bergmann's statements. Subsequent events proved that the air of the Isle of Wight had so little effect on the healing process that Mackenzie himself found it incumbent on him to suggest to his noble patient a journey to Scotland. Neither the air of Toblach, Baveno, nor of San Remo was of any avail in the matter of curing or checking the disease.

As agreed at a consultation held at the house of Dr. Wegner on the 1st, there being present von Lauer, Wegner, Schrader, von Bergmann and I, the following desires were expressed: First, that the case be watched by a German physician versed in laryngoscopy; secondly, that the treatment of Mr. Mackenzie go only so far as he himself had decided; that is, until the tumor proved malignant on microscopic examination of portions of the same, and that for this purpose all pieces removed be sent to Virchow for examination.

Touching the first point, I had been asked a few days previously by the King's chamberlain, in conformity with an expressed wish of the noble patient, to accompany him to England, and placed myself in readiness to obey this command, begging, at the time, that Dr. Wegner should likewise be asked to accompany us.

On June 6, in the evening, I learned that the above resolution had been in so far modified that Dr. Wegner was to be the sole medical companion. On the above evening, that is, the 6th, I urged the recognition of that which had been determined upon at the consultation, and succeeded in Dr. Wegner's proposing the addition of Dr. Landgraf to the party, which was acquiesced in. This seemed to ensure the necessary and urgently needed control of the case.

When I was notified by the above physician that he should forbid Landgraf to communicate with me in any way regarding the progress of the case in England, I carefully avoided any communication with my assistant Dr. Landgraf touching the subject in question. He was then acquainted by Dr. Wegner as to what his functions were to be, and with the previous history of the case. The last word which His Imperial Highness, the Crown Prince, spoke to me, was a pleasant and gracious one, and referred to the change in the matter of the accompanying laryngologist. The first official report of Dr. Landgraf from England, which was sent me by von Lauer, confirmed, though I had never spoken on the subject with Landgraf, my diagnosis on June 1, with one small and easily explained exception: He did not find a breach of surface of the growth. Landgraf's report on June 18 was as follows:

"The right vocal band is reddened, somewhat swollen, and shows a small excavation directly opposite the tumor. On the left vocal band there is a pyramidal pointed tumor, with broad base, directed upward and backward, covering the posterior fourth or third of the band. The tumor is pale yellowish-red in color, there being no marked redness either in the tumor or in the surroundings. On the left side, on the anterior portion of the posterior laryngeal wall, the mucous membrane is thickened. On adduction the movements of the left band seem to be more sluggish than on the right side. During phonation the glottis shows an opening. No ulceration, but total aphonia."

On the 17th, Mr. Mackenzie sent Dr. Wegner the following report, which was officially submitted by him: "No congestion. Condition favorable." He claimed to find no defect on the right vocal band, and attributed the aphonia to the projection of the swelling on the left band, which interfered with the proper approximation of both vocal bands. With the exception above stated, Landgraf found all that which I had noted on June 1, but which Mackenzie did not see here, and the existence of which he also denied in England, namely, the redness of the right vocal band, the irregular form of its margin, the encroachment of the morbid process on the posterior wall of the larynx, and the impaired mobility of the left vocal band.

On June 26, Landgraf found that the mucous membrane of the upper portion of the larynx was paler than before; likewise the right vocal band, the injury to which was still visible. The tumor on the left vocal band had increased in size rather than decreased, and was no longer pointed, but rounded; between the tumor and the posterior laryngeal wall accumulation of mucus; mobility of the left band impaired as heretofore. Following this, I received one more report from Landgraf, which was submitted to me by von Lauer.

On July 1, Landgraf finds (after Mackenzie's operation of June 28) the larynx reddened, the excavation on the right vocal band and the swelling on the left side no longer visible; but on the posterior wall well-marked tumefaction, grayish-yellow in color. Landgraf saw this on July 1. Later, on the Isle of Wight, Mackenzie's attention was called to a thickening of the mucous membrane at the posterior portion of the arytenoid cartilage by his assistant, and he then also saw it. (*Berliner klinische Wochenschrift, vom* 21. *November*, 1887.)

From this time on I received no further communications regarding the progress of the disease.

After the consultations of November 9 and 10, 1887, Sir Morell Mackenzie declared openly: "Although the nature of the newly-formed growth has not been clearly determined, it certainly presents the appearance of a carcinomatous neoplasm."

CHAPTER II.

REPORT OF PROFESSOR AND PRIVY MEDICAL COUNCILLOR DR. E. VON BERGMANN.

On the evening of May 15, 1887, I was requested by Dr. Wegner, the physician of His Imperial Highness, the Crown Prince of the German Empire and of Prussia, to meet him and Privy Councillor Prof. Gerhardt on the following day to examine the Crown Prince, and give my opinion of his ailment. At the same time Wegner informed me orally regarding the history of the case of the illustrious patient, stating also that the opinion of a surgeon was demanded, specially by Dr. Gerhardt. I concurred with Wegner in the opinion that, considering the importance of the case, it would be necessary to have present a specialist of note, the more so as I did not feel sufficiently well-informed in the matter of special diseases of the larynx, or in endo-laryngeal operations. As we were both of the opinion that among the noted specialists of diseases of the throat the Germans had none better known than Gerhardt, and none whose position was a higher one, it can be readily understood that we looked for a consultant to some one outside of our own country. I proposed Prof. Rauchfuss, of St. Petersburg, and one or the other of the two celebrated Vienna laryngologists, Schrötter and Störk. Wegner was of the opinion that Mackenzie, of London, whose work on diseases of the larynx lay before him at the time, would be the most proper person, a suggestion which I accepted at once. On May 16 and 18, 1887, I made examinations. Already after the first examination I was convinced that the case was of epithelioma of the posterior portion of the left vocal band. In accordance with this view I at once suggested laryngotomy, a procedure which I prefer decidedly to endo-laryngeal operation in cases of smaller carcinomata. Judge as we may, thyrotomy, laryngotomy, in fact all the operations designed to facilitate removal of intra-laryngeal growths, it is certain that during the last decade their occurrence is more and more frequent, and attended by far less danger and disastrous results. Of seven laryngotomies which I performed in Berlin, to which I may add two cricotomies, not one ended disastrously: all healed without any complications. (The *Pall Mall Gazette* as well as the *Vossische Zeitung* are persistently pleased to describe me as the surgeon who has never completed an operation successfully. "Dr. von Bergmann has not performed even one." I have not withheld from Mackenzie any of the successful issues in my operations.) I am not alone in my opinion regarding the safety of the operation. Many others, as Rauchfuss and Köhler, agree with me, and the work of Schuchardt, of Volkmann's clinic, "Ueber den äusseren Kehlkopfschnitt," states that "the dangers of laryngotomy were formerly much over-estimated, and are, at present, under thorough antisepsis, attended with very little danger."

Under the circumstances one can readily understand that I advise division of the larynx in all those cases in which there is a well-grounded suspicion of a malignant neoplasm in the interior of the organ. In the last four volumes of the "International Centralblatt für Laryngologie" we find 15 cases of laryngeal operations enumerated; that is, thyrotomies and cricotomies. Of those operated on, one died, and that from diphtheritic infection; all others recovered.

It is a decided error to determine the value of an operation from information gathered from general medical literature, magazines, etc. Such reports, statistics, compilations, etc., simply give us data by which to judge individual cases. In reading over such reports, as far as they concern extirpation of the larynx or portions of the same, we are forced to the conclusions which we have arrived at in modern times regarding extirpation of other organs, such as, for instance, resection of the stomach, or intestinal tract. These new operations were resorted to in the beginning with expectations much too sanguine, and were, therefore, allowed too great a scope. It is to this fact, however, that we owe our early and exhaustive experience, which has resulted in our restricting operative interference to such cases only as promise ultimate good results. Those cases of total or partial extirpation of the larynx which resulted favorably, are those which existed relatively only a short time and were not wide in their extent. This accounts for the fact that the percentage of cases cured after partial extirpation of the larynx is a much higher one than where total extirpation was practiced. It is proper to state that in the former cases the growths were smaller than in the latter. As, according to our opinion, the cancer of the left vocal band of our illustrious patient was very small, the operation seemed to promise the best possible results. I must add that which Bramann's, as well as my, microscopic examinations in San Remo revealed, that is, the tendency to cornification of the epithelial cells and the carcinomatous deposits in the neoplasm. Judging by analogy from the cases of Hahn and Schede, these deposits promised the best possible prognosis.

Not a word was spoken in May, 1887, regarding any other operation than the opening of the larynx as a means of extirpating the small growth that was at the left portion of the vocal band. This, in fact, was the only growth under consideration at the time. I desire to emphasize this fact, as the press, which attacked us, has been constantly pleased to speak of total extirpation of the larynx. Commencing in June, 1887, English as well as German papers lauded Mackenzie as the man who rescued the Crown Prince from the hands of the surgeons. The operation which we proposed was not more dangerous than ordinary tracheotomy, to which, according to our diagnosis, the Crown Prince would certainly, in the future, be compelled to submit. We, therefore, proposed only what was really unavoidable in the case.

But how was my judgment, which taught me at the time to urge a speedy operation, construed? I stood on the ground of personal, well-founded experience. It was then two, and it is at present more than three, years since I removed a laryngeal cancer from a patient 42 years of age, by opening the larynx and resecting a portion of the cartilage. The man, whose name is Cygan, and who has been entirely well since that time, with no recurrence of the disease, is standing beside me while I write this. He is an industrious workman in a North German printing-establishment, and although his voice is hoarse, it is still sufficiently strong to be heard at a distance of ten paces. As the examination of his larynx is most interesting, and specially designed to demonstrate the fact that the right vocal band goes well over to the left side during phonation, hugging the brilliant white scar closely, I invited Mackenzie, at the time, to examine the patient. I regret to say that he did not avail himself of the opportunity to do this. The appearances were those of the case described by Solis Cohen in the *Medical News* of 1887. This case referred to a patient on whom laryngotomy had been practiced 20 years previously, with lasting success. Therefore the same operation, which I had proposed in the case of our illustrious patient, was that which had been practiced on one who thereby had been cured of cancer. In the case operated on by me, the portion extirpated, was recognized not alone by me but by my assistant Fehleisen and by Prof. B. Fränkel, to whom I was indebted for the patient, as carcinoma. Fränkel submitted his microscopic results to Prof. Waldeyer, who concurred in his opinion regarding the diagnosis. In addition to Hahn, in the case of M. W., well known in England, in which Paget made the anatomical investigations, there is a third one of Prof. Küster, in which a cure was effected through partial extirpation of a malignant laryngeal neoplasm. I refer to the case of Medical Councillor Fromm who was operated on by him seven years before, and whose hoarseness of voice did not for a moment keep him from the pursuit of his daily avocations.

Granted that we had erred, that there was no cancer, but a benign new formation, the operation could not then have injured our illustrious patient, but the questionable diagnosis of Mackenzie would have been thereby verified. True, thyrotomy presents one gloomy feature: Disturbance of voice-production. But this does not necessarily follow. Rauchfuss, Bennett May, Parkes and others had practiced the operation for the removal of multiple papillomata from the vocal bands of children, where a good voice was preserved. It is for this reason that Schüller, in his monograph on tracheotomy and laryngotomy, correctly states that the seat of tumors to be removed and their special characteristics, and not thyrotomy in itself, stand in causative relation to the phonetic disturbances that result. If we bear in mind the advice and instructions given by Schuchardt and Köhler, if we are careful and exact in the use of our knife, and exercise care not to deviate from the median line, and take the precaution, as I do in my operations, to map out the line of incision with a short, stout knife before using the cartilage forceps, we shall not go wrong.

The fissure of the larynx, as such, would not have modified the voice, nor endangered life. The former, however, would be necessarily affected by the removal of the tumor, whether the boundary of the mucous membrane were encroached on or not. But just in this respect, endo-laryngeal measures do not differ in any way from extra-laryngeal ones. If it were intended to remove the tumor, it was unavoidable to take away with it a piece of the vocal band; the method of removal whether from within or without would not change the result in any way. I therefore felt constrained to mention the fact that the operation proposed by me would permanently injure the voice. We might expect a hoarse, rough voice; but, if we were enabled to preserve the right vocal band in its integrity, the voice would still be sufficiently good for ordinary purposes. I was in a position, by referring to a number of persons known to His Imperial Highness, to suggest to him what the quality of voice would be.

To this explanation is due the fact that after our second examination made May 18, 1887, Her Imperial Highness, the Crown Princess, instructed me to prepare everything for the operation, so that, on Mackenzie's arrival and when he had concurred in our diagnosis, the operation could be performed on the morning following, that is, on May 21. The illustrious patient himself said to me:

"The swelling must go at all events. If you cannot remove it through the mouth, you must make an external incision." I acquiesced, and then commenced my arrangements to put the second story of the palace of the Crown Prince in order for the operation; the rooms being divided into operating-room, sick-room and apartments for the physicians as well as for the attendants. I was assisted in this with untiring zeal by Her Imperial Highness, the Crown Princess, who looked well to it that not the smallest detail was forgotten, and that all the articles required by me were both new and well-cleansed. The operating-table, instruments, sterilized bandages, etc., were all in place on the evening of May 20.

It is known how Mackenzie's flat opposition to our views rendered these preparations useless. I have very little to add to the report made by Privy Councillor Gerhardt on this subject. How unequivocal Mackenzie's rejection of my decided diagnosis of cancer was is evidenced by his remark: "I feel convinced that if your great interest in the beloved Crown Prince did not have full possession of you, and if the case were an ordinary one in your clinic, you would not even think of carcinoma." He also gave reiterated assurances that his rich experience had given him more than one case, identically the same, which had been cured through mild and soothing endo-laryngeal treatment. On this opinion was based his assurance to a number of gentlemen of the court that, after a few weeks' treatment in England, the Crown Prince would again be in full possession of his voice, and would certainly be in condition to take command at the military manœuvers in the fall. The same stand was taken by Mackenzie as described by a reporter of *The World*, November 23, 1887, in which he is made to say: "I am still of the opinion that at the time the disease was not cancerous. That which I saw in the larynx of the Crown Prince was, to my eyes, non malignant; and I may be permitted to say that I have probably seen a greater number of such cases than any one living."

I must not leave unmentioned my decided opposition to Mackenzie's use of Virchow's opinion of May 21, 1887. I have rarely, and I may say in only exceptional cases, succeeded in gaining through microscopic examinations anything of use to me for diagnostic purposes, for it is a matter of chance and luck if we succeed in securing from an organized tumor, such as carcinoma, a specimen characteristic of its nature. Virchow has very properly mentioned this fact in more than one place in his celebrated work on tumors, as likewise Paget, Lücke, and also Mackenzie, who, in his work "Growths in the Larynx," London, 1871, page 36, says: "In those cases in which small particles are coughed up, or removed by the aid of the laryngoscope, we cannot depend upon the microscope in making our differential diagnosis. I have met with many cases in which the histological appearances were decidedly those of cancer, while the clinical history was quite the reverse, and *vice versa*." Even lately, Virchow writes: "I do not care to oppose this method of examination, as it is often the only one at our command; but we must not be surprised if it prove illusory. It is very possible that the infinitesimal fragments which are placed at the command of the investigator may come from a part other than the diseased one." In the case before us, it was hardly possible to reach that portion of the tumor in which characteristic elements might be contained, because it was located at the inferior portion of the vocal band, and possibly at the side of the lower portion of the larynx. This rendered practically impossible the removal of a fragment suited for examination. Mackenzie admits this in his translation into German of his book on "Diseases of the Throat and Nose," part I, page 437, and for this reason Gerhardt and Tobold declined to act in the matter. But Mackenzie, according to his communication to the *Pall Mall Gazette*, of May 17, 1888, attributes this to an entirely different motive: "There were two German professors, specialists in diseases of the throat, present. They both declared that they were not competent to do that which any member of the medical staff in the Hospital for the Diseases of the Throat, in London, could have done at once, and which any student, after a year's instruction, might have done with ease." Mackenzie seized the upper and free margin of the vocal band with his forceps. It would, therefore, have been necessary for him to go through the entire thickness of the vocal band to reach the base of the growth in question. That he did not succeed in doing this, Virchow's examination of the specimen proves. I could not gather anything from Virchow's description other than a non liquet. The specimen which was given the anatomist was not sufficient to justify a definite conclusion; certainly not that which Mackenzie, and the press, which was with him, accepted and formulated in the *Pall Mall Gazette*, June 15, as follows:

"Based on the pessimistic reports, which a number of London morning papers have published under their telegraphic news, touching the throat-trouble of the Crown Prince, the *Pall Mall Gazette* yesterday sent a representative to Dr. Morell Mackenzie, to interview him regarding the sensational rumors. Mr. Mackenzie gave the reporter of the *Pall Mall Gazette* the following information: 'After the first fragment of the growth had been removed, Dr. Virchow declared that he required another portion for purposes of examination, but, at a later date, he stated to Dr. Wegner, the physician to the Crown Prince, that he felt thoroughly satisfied. The first examination had given negative results. No cancer was found, only inflammatory products. After the second operation, which Mackenzie performed after his return to Berlin, a much larger fragment was removed, and Dr. Virchow was in a position to give a positive opinion, which was to the effect that the growth was a "thick-skinned wart." This is the common form of warty growths found in the larynx.' Dr. Mackenzie added that he did not take and did not propose to take any responsibility regarding the nature of the growth. He looked upon Virchow as assuming the entire responsibility in the matter. At the same time, he felt convinced that there was nothing in the growth which had the appearance of cancer."

On a former occasion the *British Medical Journal* had given space to like statements, but was set right according to our conception by Butlin, who, June 4, in No. 1379, wrote as follows:

> "The main points to which I wish to revert are, first, the result of the microscopic examination of the small piece removed by the forceps; and, secondly, the manner in which our journals, I mean especially our daily papers, express themselves regarding the 'triumph of British laryngeal surgery over the German.' Since the year 1883, when I called attention thereto ('Malignant Growths of the Larynx,' pages 26 and 43), I frequently have had occasion in my own practice, as well as in that of my colleagues, to examine such fragments. Through this I have come to the conclusion that it is misleading, even dangerous, to depend upon an examination based upon one specimen, unless, perhaps, in the case of diseases presenting special characteristics peculiar to them, for instance, epithelioma (cornificated). When the structure of the fragment is of questionable nature, or of the kind which we frequently find in inflamed deposits, it is proper that before giving a decided opinion a second, even a third, fragment be removed. One or two recent cases have demonstrated the necessity of care in this direction, and have shown that neglect in this regard has led to improper treatment. Touching the case of the Crown Prince, I am informed that the fragment removed was very small; and, owing to the tumefaction of the surrounding structures, could be removed only with great difficulty. I greatly admire the marvelous manual dexterity of Dr. Morell Mackenzie, but I realize how difficult it is, under existing circumstances, to remove, with anything approaching certainty, a fragment well designed for a decisive examination. We are all ready to acknowledge the superiority of Prof. Virchow in microscopic examinations, but even he can only give an opinion based on a specimen submitted to him. Up to date, the case is still in a very uncertain light, and a number, I may say very many of us here, still entertain great fears regarding the nature of the illness of the Prince. The events of the last few days certainly do not furnish evidence that Dr. Mackenzie's view is correct and that of the Germans incorrect; and I therefore earnestly hope that our periodicals, be they edited by laymen or by medical men, refrain from indulging in expressions of triumph until they are in a position to substantiate the correctness of the assertion that Mackenzie has supported the reputation of English medical science in the outside world."

In the same number Felix Semon expresses himself in the same tone.

If, in the face of this, many of our German and British colleagues still viewed Virchow's opinion in a different light from that of Virchow himself, as expressed in the meeting of the Berlin Medical Society, Nov. 16, 1887, it may have been owing largely to the publication (unfortunately printed at the same time) of Virchow's lectures on pachydermia laryngis (June 27 of that year); the more so, as a sentence by this author, in an article on June 20, had the effect of suggesting whether possibly the pathological anatomist had not overstepped his bounds, and had not interpreted according to the specimen which had been submitted to him, but had added his views to those of the clinician, and then formed his entire picture of the disease. I refer to the sentence in the second column, of page 445, of the *Berliner klinische Wochenschrift*, where it is stated: "You characterize the malady (meaning, of course, in its entirety), as an epithelial degeneration with papillary growths, pachydermia verrucosa." What Virchow really thought, and what his judgment was, he stated at the meeting of the Berlin Medical Society, on Nov. 16, 1887.

The progress and sad ending showed plainly how well grounded were Butlin's as well as our own fears.

After the last consultation, we had lost that confidence in Mackenzie which originally had prompted us to call him in consultation. We were driven to this, in the first place, by his unreliability in the matter of laryngeal manipulation, which did not justify us in the belief that his instrument really reached the tumor, and not another portion of the interior of the larynx, as, for instance, the notoriously injured right vocal band. In the second place, by the unscientific and entirely arbitrary opinion opposed to his own doctrines as well as to Virchow's, and by his shirking the responsibility, and transferring it to the pathological anatomist. In the third place, the manner in which, simultaneously with Mackenzie's appearance in Berlin, the press became informed regarding matters pertaining to the disease of our illustrious patient. A number of correspondents were give audience by him, and a number of telegrams to English newspapers indited, as has been officially determined. The first newspapers that used the words "cancerous" and "malignant growths" were English. They were in the *Daily Telegraph* of May 24 and 25, 1887, and were based on the Berlin correspondence of May 21 and 23. The last number begins by lauding, as was done on many later occasions, Mackenzie as the savior of the Crown Prince from the dangerous, as well as useless, operation; while the following edition of the 26th announces the approaching restoration of the voice of the illustrious patient, and on the 29th is kind enough to excuse the fears of the German physicians on account of a weakness in their national character. That the *British Medical Journal* of May 28, No. 1338, page 1169, did not hesitate to mention the name of the disease in question, the above reference of Butlin shows clearly. To the German medical as well as political publications belongs the credit that they were not the first to speak the ominous name of the disease, and thus give it over to the public. The *Berliner Tageblatt*, which, later, dropped every bit of consideration for us, at the end of May spoke only of inflammatory neoplasm of the vocal band. How the entranced adherents of Mackenzie in

Germany could, at a later date, accuse Gerhardt and myself of having given publicity to our diagnosis, or that we, in the effort to gain notoriety and swell our fame, from the fact of our having made a correct diagnosis, had promulgated the above facts, I cannot conceive. Many of our colleagues would have acted more wisely had they examined carefully into the case before giving their opinions and conclusions to the press.

On May 24, that is, before our joint consultation of the 25th, a conference took place between Dr. Wegner and Dr. Mackenzie in the new palace (Schloss Friedrichskron) in Potsdam, in which the former made careful minutes, which were accepted by Mackenzie. The contents are included in the Archives of the Royal Household, sub No. 4028. They are as follow: "Dr. Mackenzie is of the opinion that, considering the form of the tumor, the attempt is to be made to remove as much with the cutting-forceps as possible, and to destroy the remainder by means of the galvano-cautery. Dr. Mackenzie declares it as certain that, by this means, the voice will be restored, so that it will become loud again." In the meantime, mildly astringent powders were to be used on the growth. Dr. Mackenzie was of the further opinion that the use of the forceps was not absolutely indicated. He considered treatment with the galvano-cautery equally effective. Regarding the nature of the tumor, it was his opinion, based upon Virchow's examination and opinion, that it was a benign tumor that could be cured by intra-laryngeal treatment.

In the minutes of the medical consultation held on May 25th, and taken down by Wegner, we find: "Dr. Mackenzie looks upon the growth, judging from its clinical history and a microscopic examination, as an inflammatory thickening, and opines that as such it cannot become cancerous. If the new formation continues to grow, it must first be met with treatment by the forceps. If this does not succeed, and if other endo-laryngeal measures are not attended with success, the larynx must be opened." To this we added our opinions. Mine is almost identical with that of Gerhardt. According to Wegner's minutes and the Archives of the Household, his was as follows:

"Although he does not believe that the tumor can be removed by the endo-laryngeal method, the assurance of Mackenzie that he can do this prompts him to acquiesce in Mackenzie's proposal, but only until the microscopic examination or the progress of the disease, that is, its recurrence, calls for another plan of procedure."

In the report made by me at the time of this conference will be found:

"I expressed my fears that a long delay in the matter of extirpation of the growth, which I certainly looked upon as epithelial cancer, would allow it to assume a size that would lessen the favorable termination of the operation proposed. Mackenzie was opposed to this on the ground that the opening of the larynx would permanently injure the voice, and, if it did not destroy it, would impair it and make its use difficult; while, according to his plan, the repeated pinching off of the tumor would, in all likelihood, preserve the functional integrity of the vocal band."

Prof. Tobold submitted the following statement:

"I consider the method proposed for the removal of the new growth with the cutting-forceps as ill-timed and insufficient, as it is impossible to remove a new growth diffused with the structures of the vocal bands clearly and sharply. We cannot dismiss the fear that a recurrence would occur sooner or later, aside from the fact that, from my experience, treatment with the forceps makes a rather rough handling of the larynx and the newly-formed growth unavoidable, more especially when it presents a malignant character, thus stimulating the tendency to new formations, and ultimately compelling a more exact method of procedure. I consider the opening of the larynx to be the only proper method by which the newly-formed growth can be radically reached, as by this means we can, with certainty and absolute accuracy, cut away all diseased parts, and then destroy and make harmless the base with the Paquelin cautery. Even under these circumstances, the chances for a favorable issue regarding the voice are much better than after the use of the forceps, which would leave an uneven, torn and mutilated vocal band."

On June 1, at the conference of the physicians von Lauer, Gerhardt, von Bergmann, Tobold, Schrader and Wegner, we first learned through the physician of His Majesty, von Lauer, that the Crown Prince was to follow the physician whom we had consulted to England, and that the Emperor had acquiesced in the wishes of the Crown Prince, provided measures were adopted to control the treatment there through one of our local physicians. In the minutes we find: "Prof. Gerhardt informs us that he has been asked by the chamberlain of His Imperial Majesty, Count Radolinski, whether he would accompany the Crown Prince. He declared his willingness to do so."

What induced him at the last moment to decline Gerhardt's services has not been made clear. We desired his presence there, and begged von Lauer to mention this to His Majesty. Through Gerhardt's presence I hoped to gain the assurance of the proper observance of what had been decided upon in Mackenzie's presence during his second stay in Berlin:

1. That every newly-removed specimen be sent to Virchow.
2. That in case the tumor grew the larynx be opened.

How far the contract was adhered to is notorious. The specimen which was sent from Norwood was designated by Virchow as a superficial, excised fragment of mucous membrane, which would not justify an expression of opinion regarding the deeper portions. The well-marked growth of the new formation was observed from week to week by Dr. Landgraf, who, for the purpose of laryngoscopic examination, accompanied the illustrious patient to England and Scotland, as assistant to Dr. Wegner.

[Prof. von Bergmann's report is continued on pages 58–67, 76–86.]

CHAPTER III.

REPORT OF STAFF-PHYSICIAN DR. LANDGRAF.

Prior to my departure for England in the retinue of His Imperial Highness, then Crown Prince of the German realm and of Prussia, I had gathered information from Privy Councillor Gerhardt on the evening of June 12 regarding the malady of His Imperial Highness, and also asked suggestions regarding the proper course for me to pursue. Privy Councillor Gerhardt refused to give me his opinion regarding the nature of the malady; nor was he in position to give me special instructions, but referred me to Dr. Wegner, whom I was to accompany on the journey, and to whose instructions I was to hold myself subject. The last-named gentleman exacted from me a promise in Berlin to send no communications regarding the case there. In Norwood, he advised me as to the previous history of the case, and stated that His Imperial Highness had put himself entirely in the hands of Dr. Mackenzie and did not desire that we should take any active part in the treatment. This, therefore, restricted my activity to laryngoscopic examinations and to the submission of reports to my superior.

Regarding the progress of the morbid process and points connected therewith, the patient's general condition, the matter of weight, enlargement of the lymphatic glands, pain in swallowing, etc., I could not get any satisfactory data. The results of the first examinations on June 17 and 18 have already been fully reported by Privy Councillor Gerhardt.

As Dr. Mackenzie, contrary to everything observed by me, denied the existence of inflammation, and also denied impaired motion of the left vocal band, and in a hastily prepared sketch made for Dr. Wegner had touched neither upon the defect in the right vocal band nor upon the swelling at the posterior wall — as, therefore, even at this early stage there existed a difference of opinion, I felt satisfied that it would be proper that we be advised regarding the proposed therapeutic measures decided upon by Mackenzie, and I made the following proposal on the evening of June 19:

An attempt should be made to obtain from His Imperial Highness an order to the effect that at such times that Dr. Mackenzie proposed to make any change in treatment, Dr. Wegner be informed of it, and be acquainted with the reasons therefor. I further proposed that this should at all times be carefully entered in the minutes. This proposal was very promptly rejected.

During the following days I learned that Dr. Mackenzie was employing applications of a solution of perchloride of iron, and that after these applications His Imperial Highness suffered pain, which he was compelled to allay by the application of ice. Dr. Mackenzie was said to find that these applications tended to decrease the size of the growth.

On June 24, I called attention to the importance of frequent examinations, looking to the detection of glandular enlargements, and communicated with a person highly connected, in reference to the prognosis in case laryngotomy was performed.

In a conversation which followed my last report, I learned that it was the intention of Dr. Mackenzie to again remove a small portion of the tumor for purposes of microscopic examination. This operation was done without any invitation being extended to me by Dr. Mackenzie, and in the presence of Dr. Wegner, June 28. I saw the result of this procedure on July 1. The tumor had been removed. There were marked redness and swelling. The tumefaction at the posterior wall was more plainly visible, its surface presenting a grayish-yellow appearance. The enlargement was about in the centre, extending, perhaps, a little more to the left side. As Dr. Mackenzie had now corroborated, as it were, one part of my opinion, serious doubts arose in my mind regarding the exactitude of his method of examination, and I gave voice to this fact. In view of the importance of the case, I urged that Dr. Mackenzie be communicated with, and asked whether he did not recognize the swelling at the posterior wall, and, if he saw it, what his interpretation of it was. I repeated this demand on July 2, accompanying it by a drawing of the case. A written answer was denied, but an oral explanation was promised me shortly.

On July 4, Prof. Virchow submitted his opinion, accompanied by a letter couched in very hopeful terms.

On July 8, I learned that Dr. Mackenzie had given the assurance that, in his estimation, the posterior wall was in a healthy state. I may be permitted to add here that when I had made a sketch on July 29, in Norris Castle, for Dr. Wolfenden, showing the location of the swelling, Dr. Mackenzie acknowledged its existence on July 31.

On July 22, I again had the honor, in Norris Castle, to examine His Imperial Highness, and found that, after an interval of three weeks, the general redness and swelling had diminished, more particularly at the ventricular bands. The right vocal band was still of marked redness, but less swollen. The left vocal band showed in its posterior two-thirds a broad, saddle-shaped tumefaction. There were likewise swelling and redness at the posterior wall of the larynx, but no ulceration. The tumor had, therefore, reappeared at the site from which it had been removed on June 28. Dr. Mackenzie admitted this on July 23.

On July 27, I learned that it was intended to employ the galvano-cautery. Prior to this, I was again permitted, on July 29, to make an examination. The appearances were those of the 22d. The motion of the vocal bands appeared to be freer. His Imperial Highness on this day spoke in a distinct double voice.

On July 31, there was another examination by Dr. Mackenzie, followed by a long deliberation between Dr. Wegner and Dr. Mackenzie, when the former acquainted me with the following regarding the same: He had called Dr. Mackenzie's attention to the fact that he (Mackenzie) was the one to determine the time when he could proceed no further, and when it would become necessary to resort to extreme measures. Dr. Mackenzie had stated to him that he saw a process extending from the left vocal band to the left arytenoid cartilage (*vide* my report of July 1), and had furthermore explained that there might be three possibilities that could lead to an unfavorable issue in the case:

1. The least probable was the possibility of a change of the growth to the malignant form.
2. We might have a case of multiple papilloma, which would then appear at points in the larynx other than those now affected.
3. The case might resolve itself into one of chronic laryngitis, whereby the deeper tissues of the larynx would become involved.

On Aug. 4, Her Imperial Highness, the Crown Princess, did me the honor to inquire of me in her loving, anxious way regarding the state of health of her illustrious husband. I learned on this occasion that His Imperial Highness had, since March, been a constant sufferer from pain in swallowing, and had only been free from this for a few days in Norwood. During the last few days this had increased, and deep respiration was also attended with pain. I did not hesitate to call attention to the facts which stood in causative relation to the first-named symptom, and dwelt upon and emphasized the improbability of the correctness of Dr. Mackenzie's explanation of the pain in swallowing, which was to the effect that an ordinary cold could cause it. I did not share the hope that a change of climate from the Isle of Wight to Scotland would have any favorable effect on the disease.

On Aug. 7, after Dr. Mackenzie had employed the galvano-cautery for a number of days, I was again permitted to make an examination. I found the tumor enlarged, encroaching more on the inferior space, and of uneven, more or less elevated surface. In the centre of it appeared a black spot. The tumefaction at the posterior part of the laryngeal wall remained unchanged. A process appeared to project from the lower border of the tumor to the swelling. The motion of the left vocal band was almost entirely suspended. The right vocal band, which I found less red and swollen, showed clearly the afore-mentioned lesion; it moved freely toward the tumor. I called attention to the fact that the almost total immobility of the left vocal band pointed to deeper changes. On this day Dr. Mackenzie admitted the existence of paresis of the left vocal band.

On August 7, I took occasion, during a promenade with Dr. Wegner, to state to him that Dr. Mackenzie had now exhausted the desired eight weeks in which to restore entirely the Crown Prince to health, and that the fact existed that not alone had the malady not been favorably modified, but had grown decidedly worse. I considered it desirable that a further consultation be held with the Berlin physicians, the more so as this had already been decided upon on a former occasion. I called attention to the dangers of a further delay in operating, and gave expression to my opinion that perhaps even now the removal of the tumor might not be sufficient, but that extirpation of one-half of the larynx might become necessary.

Dr. Wegner seconded my proposition for another consultation. This consultation, however, did not take place. Dr. Mackenzie, I was informed, admitted that no improvement had taken place, but that all cases of cancer which he had seen presented an entirely different appearance; that if it were cancer, it would of necessity have ulcerated before then. Up to that time, he said, he had not paid much attention to the motility of the left vocal band. Perhaps it had been more marked previously than at present. I was not surprised at this admission of the superficiality of his examinations. I had on former occasions expressed my doubts as to the thoroughness of Dr. Mackenzie's examinations, more particularly when I was informed that I had the reputation of employing too much time in laryngoscopic examinations.

On August 9, we took our departure for Edinburgh; remained there, and later on went to Aberdeen, while His Imperial Highness, to whose retinue had been added Dr. Hovell, took up his residence in Braemar. To this place Dr. Wegner and I were summoned on August 23, and it was here that I had the honor of making my last examination of His Imperial Highness. The right vocal band was less reddened than formerly. The left vocal band moved neither during phonation nor respiration ; it was fixed at a point midway between the respiratory and phonatory position. The surface of the tumor was covered with a number of serrated elevations that extended almost to the centre of the glottis. This interfered seriously with a view of the deeper portions on the left side, so that the process at the posterior wall was almost entirely hidden from view. His Imperial Highness complained of constant pain in swallowing, referring it to the left side and superior portions of the pharynx.

Immediately following the examination, Dr. Hovell questioned me as to what I had found. He could not, he stated, notice a recurrence of the growth. I expressed my regret not to be in position to give him information as to what I had seen, and showed surprise that he, who had so much more frequent opportunities for examination, should question me on the subject. After the return from Braemar, I considered it my duty to put myself on record that, according to my opinion, the morbid process was growing progressively and steadily worse. This led to a discussion regarding the proper interpretation of what I had seen, in which the opinion was expressed that the processes extending from the growth were simply the remains of the old trouble which had not been reached by the galvano-cautery. I felt constrained to look upon them as new formations, and based my opinion on the fact that the tumor encroached much further on the glottis, and that, furthermore, it did not show any cicatrices due to cauterization. I further proposed that if it were considered necessary to make another microscopic examination, it should be insisted on that it take place at once, as, with the present size of the tumor, the removal of a specimen would be a very easy matter. I repeated this proposal on August 29. On this day I was made familiar with the contents of the bulletin which was intended for the *Reichs-Anzeiger.* It had been prepared by Dr. Mackenzie, and it denied the recurrence of the growth which I had found. In the original draft of it, no mention had been made of the existing hoarseness. The bulletin was shown me, with the admonition that no further alterations in it would be permitted.

Soon after this, we returned to London, and His Imperial Highness dismissed us, expressing the hope that we should soon meet again in Berlin. Our return trip was made on September 3.

During the time which His Imperial and Royal Highness spent in England and Scotland, and later in the Tyrol, those German political papers, which claimed to possess reliable information, gained from those near to Mackenzie, announced, as well as did Mackenzie himself, a progressive improvement in the condition of the illustrious patient. More especially did the *Berliner Tageblatt* claim this, intimating that it received its news from a correspondent who claimed to have been in an ante-room of Mackenzie's at the time he performed the galvano-cautery operation, and to have accompanied him later in his consultation visits to Italy, finally holding the place of a daily visitor among the English physicians at the Castle of Charlottenburg. So reliable was this information of the different papers considered, that based on it they saw fit to make the most bitter attacks on the "pessimistic" stand taken by the German physicians.

This was also the attitude assumed by the *British Medical Journal*, which, on more than one occasion, gave as its informant, Mackenzie himself. If we compare the weekly notices of the above-named journal with the reports of Landgraf, we fail to comprehend how, in the issue of July, 1887, No. 1385, the following could appear:

> "The Crown Prince has made very marked and satisfactory progress on the road to complete recovery. His voice has increased in strength and resonance, and is almost entirely free from hoarseness. In ordinary conversation he can use it without becoming tired, but, as can be readily understood, cannot subject it to any great strain. There is still present a slight congestion of the larynx. The action of the vocal bands is, at present, entirely restored, with the exception of the left one, which shows a slight inequality at the point where the growth existed. Nothing of an extraordinary nature is at present visible except a slight elevation, corresponding to the seat of the root of the small wart, and this base is, to all appearances, in a quiescent state, showing neither signs of inflammation nor recurrence. Locally, the patient's condition is such a satisfactory one that the present treatment is merely of a sedative nature."

Further, the *Reichs-Anzeiger* also, on September 2, 1887, published a report sent by the physicians of the illustrious patient from Vlissingen, which, by the public, was accepted and viewed almost in the light of a complete recovery:

> "The health of His Imperial and Royal Highness, the Crown Prince, has, of late, progressed favorably, his general condition being splendid. Since the last cauterization in July, no further increase of the tumor has taken place; a recurrence of the same is, however, not improbable. This might retard recovery, but should not excite any special fears. Absolute rest of the voice and avoidance of cold and damp air are the most important prophylactic measures to be observed in the near future."

To the original draft of this bulletin by Mackenzie, Dr. Wegner added one sentence in his German translation, to wit: "The voice is still hoarse." Without this, no doubts would have existed as to a complete recovery at the time. If we recall that the announcement of the certain restoration to health came at the time of Sir Morell's elevation to the dignity of a baronet, we shall readily understand that the entire German nation expressed its admiration and veneration for the English physician, and can realize that the newspapers, which lauded him as the only successful physician, with correct judgment, had only words of reproach and condemnation for the German physicians. Berlin looked forward to the return of the restored Crown Prince with feelings of joy, and everywhere preparations were made to give him a fitting reception. Then came the first awakening. The Crown Prince traveled, but passed Berlin by. His Majesty, his venerable father, waited for him in vain.

The question arose at the time why facilities were not extended to those physicians who saw him during the summer, that they might convince themselves by personal inspection of the incorrectness of their views; but any existing doubts were allayed by the fact that the Crown Prince had appeared in Frankfort in possession of full vigor and health, and that "the best informed papers" did not lack any number of reässuring reports. These papers also dissipated any fears that might have arisen from reports of continued hoarseness at Toblach, and of an attack of choking, which made an immediate change of residence to Venice necessary. In Baveno everything seemed to move smoothly, more especially as the press at the time seemed to regard the continual journeying, and the stay in a rough climate at high altitude, as the best proof that the German physicians had erred in their fears.

The world, which had, until then, been quieted on the subject, was not a little surprised when, in the beginning of November, 1887, it was announced that Mackenzie had been hastily summoned from England to San Remo; had declared the disease malignant, and insisted on having other physicians called in consultation. We can easily realize that this threw His Majesty, the Emperor, as well as the entire royal family, into a state of great excitement, and that His Majesty demanded authentic reports regarding his son and successor to the throne. To secure this, His Royal Highness, Prince William, was commanded to repair at once to San Remo with the confidential physician, Dr. Schmidt, of Frankfort, who had been selected by the physicians of the Emperor. Neither Prof. Gerhardt nor von Bergmann was sent, as it was feared that Mackenzie would view their report from the standpoint of a foregone conclusion. For the same reason, Dr. B. Fränkel was not selected, as he, although occupying the position of professor of laryngology, had been rejected by Mackenzie in favor of Dr. Krause, who had only lately taken his habitat in Berlin. The Kaiser desired, as a reporter in the case, one totally free and unbiased.

The particulars of the medical consultation and the conclusions reached, are embodied in the reports of Prof. Schrötter, of Vienna, and of Dr. M. Schmidt, of Frankfort-on-the-Main.

CHAPTER IV.

REPORT OF PROFESSOR SCHRÖTTER.

When, on Nov. 6, 1887, at nine o'clock in the evening, I received a telegram signed by Gen. von Winterfeldt, summoning me, in the name of the German Crown Prince, to San Remo, I made immediate preparations, and on the morning of Nov. 7, at seven o'clock, took my departure. On Tuesday, the 8th, at half-past six in the morning, I arrived at San Remo, where I was received at the depot by Dr. Schrader, who conducted me to the Hotel Méditerrané, which was situated opposite the villa of the Crown Prince. On our way there I was informed that Dr. Krause, of Berlin, had also been called in consultation. This statement filled me with amazement, as I expected that in a case of such great moment I should only be called upon to consult with physicians of known experience. On the other hand, I knew Dr. Krause, who had been engaged in his special branch of practice at my clinic in Vienna for some time, and recognized him as an ambitious young colleague.

At the hotel I was greeted by Mackenzie, whom I knew well from former meetings, in the pleasantest manner. He apologized that he had been prevented by circumstances from meeting me at the depot, and that he would also be unable to spend the evening with me. I was given permission to make an examination of the illustrious patient the next morning alone, but stated that it would be to his best interests if the examination were a general one, by all the attending physicians.

After the arrival of Dr. Krause, on Nov. 9, in the morning, Morell Mackenzie, in the presence of Dr. Schrader and Dr. Hovell, made explanatory remarks regarding the disease and its previous history, and what operations had been performed, to which were added explanatory remarks by Dr. Hovell regarding his care of the patient while under his charge. It must be emphasized, as a point of the greatest moment in this report, that Mackenzie, when he again saw the Crown Prince at San Remo and reported regarding the changes that had taken place in the tumor, said to him: "Now it looks like a cancer;" and in answer to my direct question as to whether he had said this, he replied in the affirmative.

Immediately following this, we all went to the villa Zirio, and were received by His Imperial Highness, whose general appearance was good, in the most friendly manner. He welcomed us with a voice which, though hoarse, was distinct, and I at once received permission to go to a darkened room and proceed with my examination. This task was made an easy one, as the obliging patient did not place any obstacles in the way, but willingly and cheerfully, with pleasant remarks, allowed everything to be done with him that might be necessary for making an external as well as a laryngoscopic examination, and this, it may be presumed, must have been distressing to him, as he was accustomed to Mackenzie's mode of examination, which differed from mine. The Crown Prince was so well informed as to the details of laryngoscopy that he at once remarked, at the examination of Dr. Krause, which followed mine: "Ah, sure enough, why you examine just like Dr. Schrötter; you are a pupil of his."

Although it is my habit to make careful investigation of the thoracic organs, I refrained from doing so in the case, as Dr. Schrader assured me, in the most emphatic manner, that, from frequent examinations which he had made, he could assure me that everything was absolutely normal, and that the remainder of the body showed nothing which could be viewed from a pathological standpoint.

This visit was over in a short time, and we again retired to the salon of Mackenzie at the hotel, where the task lay before us of coming to a definite and unanimous conclusion.

I had spoken only a few words regarding my opinion, when it became apparent that there existed decided differences. Dr. Krause especially emphasized the possibility of the case before us being other than a new formation, and possibly another ailment. I could find no data on which to base any such opinion. I, therefore, called for a division of opinions, which were to be spread on the minutes, saying that I could not deviate in any manner from what I had previously said. That I weighed carefully what I said at this time, goes without saying, more particularly as Dr. Schrader informed us that our opinion was to be sent to the highest personages in Berlin, to be there embodied in the archives of the realm.

Dr. Krause conceded that I be allowed to dictate my opinion, and have it inscribed. My minutes substantiated, in the most exhaustive manner, my view to the effect that the illustrious patient was suffering from œdema due to perichondritis, which, in its turn, was produced by the excursions of a malignant neoplasm (carcinoma).

It is true that on account of the œdema it was difficult to make a diagnosis just then; but, weighing carefully what I had gleaned from the reports of the medical press in Berlin, what Mackenzie and Schrader had informed me of, and, finally, what I consider most important, that which I had observed in spite of the œdema, that is, the external thickening of the larynx, the swelling, it is true not marked, of the lymphatic glands, and finally the laryngoscopic examination, I was forced to arrive at the above diagnosis. The œdema of the left side of the larynx revealed small projections extending downward from the ary-epiglottic fold, such as we fail to find in ordinary inflammatory tumors, and which only became visible when the patient's body was turned to the right and his head to the left, a position which he very willingly assumed. Absolute immobility of this half of the larynx, with the attendant external thickening, could only be connected with disease of the deep structures; that is, of the crico-arytenoid articulation of this side.

If we accepted these appearances as evidence of crico-arytenoid perichondritis, the question would at once suggest itself, to what was this due? It was just the constant recurrence and disappearance of the œdema, the long duration of the disease, and the non-appearance of an abscess which militated against the acceptance of the diagnosis of simple perichondritis. Taking into consideration the exclusion of every other disease, the age of the patient, the thickening of the larynx, more particularly the peculiar, facet-shaped appearance of the tumor (to which I, by the way, do not attach much importance), the swelling of the lymphatic glands, it was out of the question to look upon the new formation as anything but malignant.

I further stated that there were only two therapeutic measures open to us: First, to simply wait until, owing to the increased growth of the neoplasm, suffocative attacks would make necessary a deep tracheotomy, an operation, the purpose of which would not be to cure the malady, but rather, while not affecting the progress of the disease, to prolong life. Secondly, with a view to a radical cure, to extirpate the larynx. This operation is again divided into partial and total extirpation of the organ. I had to admit my doubts at the time of the first examination, owing to the œdematous condition of the parts, as to whether extirpation of half the larynx would suffice; but explained that this question could be decided during the operation, and stated that in all likelihood the necessity for total extirpation would present itself. Naturally, it would be our duty to acquaint our patient with the great danger which an extensive operative interference would entail, and I suggested to him that in deciding upon an operation attended with such serious results, those high scientific authorities who had formerly attended him in Berlin should be consulted.

I held it to be of the greatest importance to arrive at a correct diagnosis, so that no time should be lost in useless therapeutic measures, as further delay in the matter, if the operation were decided upon, would not be advisable. Following this, Dr. Krause submitted his opinion in writing, in which he coincided with me, dwelling, however, upon the details of the operation, to which there appeared to be a tendency to opposition.

During the afternoon we were received by Her Imperial Highness, the Crown Princess. Evidently she desired to hear the entire truth, and I had the honor to read the minutes which had been taken down by me. She immediately made it apparent that from this quarter there were decided misgivings regarding the advisability of an operation. In this respect, the illustrious lady was supported in her opinion by Dr. Hovell, whose views she desired in such a decided manner that I could not sufficiently express my surprise at it. I took the liberty, at this time, to observe that the right of determining what was to be done certainly belonged to the patient, and that even we did not consider it desirable to influence his determination in any way, and that from a medical standpoint we should have to confine ourselves to making clear to the patient the full facts and the chances of the different operations.

As Her Imperial Highness opined that possibly when the acute œdema should have subsided in a few days, more careful examination could be made, and I might, then, possibly modify my opinion regarding the disease, I postponed my departure, in accordance with her wishes, to Nov. 11. I protested decidedly against the further extirpation of additional fragments, which Mackenzie proposed for purposes of histological investigation, as such operative procedures could only lead to more rapid growth or to a breaking down of the neoplasm; besides, there existed a doubt as to whether the most skilful investigator would be able to determine from an examination of a specimen the nature of the disease in its present stage.

On the same evening, His Imperial Highness, Prince William, arrived, and with him, by order of His Majesty, the Emperor of Germany, Dr. Schmidt, of Frankfort-on-the-Main. We were all received by His Imperial Highness, when I again reiterated what I had said (as above), in the most emphatic manner. When, later, we had a lengthy discussion with Mackenzie, the possibilities of the case were once more gone over, and again differences of opinion cropped out regarding the diagnosis.

On the following morning, that is, on Nov. 10, at 10:30, we again made an examination of His Imperial Highness, in which Dr. Schmidt took part. As the swelling was a trifle less, the changes on the left side presented not only more characteristic appearances, but, to our regret, a small nodule showed itself on the right vocal band. This fact, had any doubt existed in my mind, would have strengthened my former views; and, in the consultation of physicians which followed, I declared that I could not announce any change in my opinion, either in regard to diagnosis or to therapeutics. Dr. Schmidt expressed his entire concurrence with my opinion.

On the same day, in the morning, the opportunity had been given me to speak with the Crown Princess, on which occasion she firmly declared her opposition to extirpation, and only consented to the operation of tracheotomy, as, under all circumstances, she desired to see the life of her beloved spouse prolonged, and considered that only in this way could it be done. I then allowed myself to remark that it would be proper, under the circumstances, to summon to San Remo a German physician of experience, as the time could not be determined in advance when the necessity for such an operation should present itself. On the other hand, I considered the sojourn of our illustrious patient in the south as in every way indicated. I then proposed that Prof. von Bergmann be requested to hold himself in readiness to go to San Remo when ordered; but that, in the meanwhile, to provide against any possible contingency that might arise, one of his experienced assistants be sent there. To this the Crown Princess did not give any decided reply, as she appeared to believe that in Dr. Hovell she had a sufficiently competent aid.

In the evening we were again received by His Imperial Highness, Prince William; and later, in conformity to the wish of my colleagues, I had written, by Dr. Krause, to whom I dictated, an exhaustive memorandum regarding the chances of extirpation of the larynx as opposed to simple tracheotomy. This memorandum embodied the opinion of every one present, and was intended to serve in an explanatory way after we had made our oral communication to His Imperial Highness, the Crown Prince. We had resolved, when portraying the case to our illustrious patient, to acquaint him as clearly as possible with the condition of affairs; but to temper the painful details, to give him the memorandum that he might carefully, and after thoroughly weighing everything, make his decision.

Prior to the last examination, on the 11th, in the forenoon, I once more had the honor of a short conversation with Her Imperial Highness, the Crown Princess. The illustrious lady, filled with loving solicitude for the patient, begged me to make my sad communication as gently as possible, promising me, at the time, to meet my suggestion regarding a German surgeon, in answer to which I could not repress a word of thanks, exclaiming: "Now I return home feeling more calm."

As an effect of the applications of ice, which was also swallowed in small pieces, the œdema had partially subsided; but the general appearance of the disease remained about the same, so that no reasons existed for me to change my opinion. It now became my painful duty, for which my colleagues, in their confidence, had selected me, to report to His Imperial Highness regarding our investigations and opinions. This took place in the presence of Her Imperial Highness, the Crown Princess; and I must state that the whole scene was one of the most impressive and touching ones of my life.

The illustrious patient, on whose countenance not a sign of excitement was visible, declined with a smile my request that he be seated, and received my report standing with philosophic calmness and the courage of a hero. When I dwelt upon the chances of both operative methods, the pleasant expression of his face did not vary for a moment. Deeply impressed, I was luckily in a position to refer to a case which I had lately seen of an old gentleman, in whom there had been spontaneous and entire disappearance of a similar neoplasm in the larynx, and the illustrious patient seemed pleased when I stated to him that in this case the patient was a man in the seventies, whereupon he exclaimed: "Why, I am only in the fifties!"

After his Imperial Highness had asked the other physicians if they desired to add anything further to my communication, which, by the way, they did not, he put the question direct, but apparently without feeling in any way disturbed, whether the disease was cancer, to which I was compelled to give an answer which I qualified. One could not help being deeply impressed with the pleasant and hearty manner in which we were dismissed. No casual observer would have suspected that such a tragic scene had just been enacted. With a pressure of the hand, the noble man bid me adieu, and said: "May we meet again, if God so wills it."

The Crown Princess also bid us adieu in the most gracious manner, again reiterating her approval of the plans mapped out by us.

Dr. Schrader then handed the illustrious patient the written memorandum of the day before, regarding the chances which the different operations offered, and a few minutes later the will of His Imperial Highness was made known to us in writing, to the effect that he was not willing to submit to the extensive operation, but had decided to have tracheotomy performed. We then met at the house of Gen. von Winterfeldt, and in the presence of His Royal Highness, Prince William, the first bulletin for the *Reichs-Anzeiger* was indited, and a decision arrived at concerning further ones, which should gradually become graver in their tone, so that the general public might slowly be prepared for the gravity of the situation. It would have been possible, of course, as far as the public was concerned, to adhere to the diagnosis of perichondritis. Why the plans here laid out were deviated from, how it became possible that remarks made only in the closed circle of physicians and an hour subsequent to which I commenced my journey home, were promulgated in the most cruel manner in the newspapers, is beyond my comprehension. The later, constantly-recurring modification of the views regarding the nature of the ailment, as also the frequent changes in therapeutics, for the information regarding which the newspapers were my source, as also corroborative statements made to me by persons who, as I believed, were in a position to be well informed in the matter, were calculated, considering the progress of the case, to fill me with much sorrow.

I have to add that I was commanded by Her Imperial Highness, the Crown Princess, to mention the true state of affairs only to His Majesty, the Emperor, and to the Austrian Crown Prince; but, as far as the public was concerned, to observe strict silence. This order was revoked only a few days after my return. Then, it is true, after the secret was out and well-ventilated, I made a few remarks in private circles, and it is not my fault if these remarks were circulated in the most unbecoming manner.

CHAPTER V.

REPORT OF MEDICAL COUNCILLOR DR. MORITZ SCHMIDT.

On Nov. 10, I found a yellowish, partially transparent œdema of the left ary-epiglottic fold, of such size that only the anterior two-thirds of the right vocal band, and only about one-fifth of the left, were visible. Under the latter, I observed a dark red swelling with a yellow covering. The entire mucous membrane of the larynx was of a deep red.

On Nov. 11, the œdema had in so far disappeared that I could see the greater portion of the left vocal band, the posterior wall, as well as the right vocal band in its entirety. The mucous membrane of the larynx was still of a deep red. Under the left vocal band, along its entire length, there was swelling of the sub-glottic region, extending beyond the margin, and dark red in color. Along nearly the entire length of the swelling I found an irregular, slightly-excavated yellowish portion, which I looked upon as a superficial ulceration. The swelling in the sub-glottic region extended along the posterior wall to the right side, where it ended as a red nodule, of about the size of a large hemp-seed, at the posterior third. The anterior commissure was also encroached on by the swelling, which overlapped it toward the right. There was no motion in the left vocal band. I found the lymphatic gland on the ligamentum conoideum of the size of a small pea. The sub-maxillary glands on the left side were only slightly swollen. This might have been owing to other influences.

Considering the gradual development of the trouble, extending over a period of ten months, and the age of the illustrious patient, and also the data furnished by the laryngoscope, I could not characterize the ailment as other than perichondritis owing to carcinoma. I desire to emphasize specially that only in carcinoma have I observed nodules such as I noticed on the right vocal band.

The question of operative interference, as the swelling had already gone beyond the middle line, resolved itself into either a total extirpation of the larynx, or a simple palliative tracheotomy. Total extirpation of the larynx would, at this stage, have still been possible, with a reasonable hope of success; but, on account of the uncertain termination thereof, the physicians in attendance could not prevail upon His Royal Highness to submit to the operation. The assembled physicians had prepared a statement explanatory of the operations recommended, detailing its dangers and possibilities. After His Imperial and Royal Highness had weighed these carefully, it was his pleasure to decide against extirpation of the larynx. It is common practice after thoroughly instructing the patient to let him speak the decisive word. The communications received by me in Berlin from a physician who had formerly treated His Imperial and Royal Highness, the drawings submitted to me, as well as the wax model prepared by Prof. Tobold, illustrative of what he found in May, 1887, and which, according to the testimony of the physicians, presented a very true picture, left no doubt in my mind that the pathological conditions, found by me in November, were directly connected with those which were observed from March until May, 1887.

The progress of the disease since November, its fluctuations and manifestations, which, it is true, I had no facilities for observing personally, clearly corroborated the correctness of our diagnosis. I have observed, in nearly every case of cancer, that there are periods when the disease appears to make marked progress toward recovery. The course which this case took, from beginning to end, appears to have been the usual and typical one.

The declaration made by the physicians in San Remo, from Nov. 9 to 11, is as follows:

"After oft-repeated and searching examinations, the assembled physicians are entirely satisfied that in the case of His Imperial Highness they have to deal with cancer of the larynx. Regarding the treatment, its different possibilities were carefully weighed, and His Imperial Highness was acquainted therewith. At the same time, the performance of tracheotomy, when indications presented themselves, was recommended.

"MORELL MACKENZIE,
SCHRÖTTER,
SCHRADER,
KRAUSE,
MORITZ SCHMIDT,
MARK HOVELL."

It is well known that His Imperial and Royal Highness, after receiving the report regarding the significance and chances of a total extirpation of the larynx, this being, then, the only operation which, on account of the encroachment of the trouble on the right side, held out any hope, expressed his decided opposition to it, in writing, to the physicians. With great coolness and true heroism the illustrious patient received the communication regarding the gravity of his ailment. It even seemed to those surrounding him that after the decision, which the opinion of the physicians called for, the bearing of the Crown Prince was of a quieter and better order; in fact, joyful.

Immediately following the consultation at San Remo, Dr. Schmidt departed for Berlin, where he arrived on Nov. 13, and, soon after, with the family physician, Dr. Leuthold, and Prof. von Bergmann, appeared before His Majesty to make his report. The *Reichs-Anzeiger* reports as follows:

> "At the examination of the larynx of His Imperial and Royal Highness, the Crown Prince, the physicians assembled were enabled to determine that the ailment was owing to the presence of a malignant new formation. It is situated mainly below the left vocal band and the posterior portion of the larynx. Slight traces are commencing to manifest themselves on the right side. The ailment is, up to date, a local one, and it has not affected the general condition of the patient. The danger of the new growth lies in its progressive enlargement. As His Imperial and Royal Highness has not expressed his willingness to have total extirpation of the larynx performed, inability to breathe will, sooner or later, determine the necessity of tracheotomy. As the physicians assembled at San Remo looked upon extirpation of the larynx, even viewed in the most favorable light, as being of such significance in the later life of the patient that they could not come to the conclusion to urge the operation at all hazards, but to leave the question to be decided by the illustrious patient himself, it does not surprise us that the highest authority again propounded the question whether it would not be proper to try to gain consent to operate, as otherwise the patient was surely doomed. Likewise was the wish expressed by His Majesty that there should be an official report of the whole disease, in which it be stated clearly why the performance of the operation which had been planned in May and June had been abandoned, and why only at this late date the question of operation was again broached. For this purpose the minister by proxy, Count Stolberg-Wernigerode, on Nov. 13, called together the physicians, Prof. von Bergmann, Dr. Wegner, Prof. Gerhardt, Prof. Tobold, Dr. Leuthold, Dr. Schmidt, and Staff-Physician Landgraf for a conference in the royal ministerial chamber."

The minutes, and everything connected therewith, which were compiled from the memoranda, histories and reports of all the physicians who had seen the case, are embodied in the Archives of the Royal Household, and served as a basis for the report above given.

The assembled physicians were of the same opinion as those who had consulted in San Remo, that is, that, at present, total extirpation of the larynx was indicated, partial extirpation being entirely out of the question. Although there were on record a number of well-authenticated cases which had been permanently cured by total extirpation of the larynx, still the attending physicians were of the opinion that before undertaking so grave an operation, the result of which might be fatal and would, at all events, more or less mutilate the patient, the wishes of the patient should be consulted and accepted as final.

Why the operation was not performed during the summer our reports plainly demonstrated: "When, in June of last year, the attending physicians had received the assurance that an operation would be performed as soon as the growth showed a tendency to enlargement, they were certainly justified in attaching the blame of 'too late' to that person who had overlooked the fact of enlargement, and even denied it at the time when Dr. Landgraf called special attention thereto, and urgently desired a further consultation."

The reports of Prof. Schrötter, which were read by Dr. Leuthold, established the fact that at any moment œdema of the ary-epiglottic folds might supervene, and present a condition dangerous to life and necessitating immediate tracheotomy. For this reason, the physicians were very decided in their demands that a surgeon thoroughly conversant with the operation of tracheotomy be sent to San Remo at once, to institute prompt operative measures in case of the much-dreaded complication. Dr. von Bergmann recommended, as the most proper person, the chief assistant of his clinic, Dr. Bramann; the other physicians concurred in his opinion.

Immediately following the consultation of Nov. 9, and after the noble patient had been acquainted with the conclusions arrived at, Dr. Schrader, on Nov. 11, wrote to Prof. von Bergmann as follows: "I have the honor to very humbly report confidentially to your Well-born Highness, in conformity with the wishes of His Imperial Highness, the Crown Prince, and Her Imperial Highness, the Crown Princess, the results of the laryngoscopic investigation, and to ask you to kindly perform tracheotomy, which will, sooner or later, become necessary in the case, this being the expressed wish of ALL the physicians here present in consultation."

Prof. von Bergmann submitted his thanks by telegraph at once, for the confidence bestowed upon him, following this by a letter later on, and declared himself ready to undertake the operation.

But the physicians at San Remo, as also those who had been interviewed in Berlin on the subject, declared that at any moment œdema of the glottis or some other complication might supervene, interfering with the breathing-space, and that, pending the arrival of Prof. von Bergmann, it would be well to have a resident physician competent to operate if called upon. The minister, by proxy, of the royal house, did not feel that it would be proper to delay longer, but that prompt measures should at once be instituted, so that speedy assistance might be assured His Imperial Highness when called for. Acting on this, Dr. Bramann left Berlin by order of His Majesty, on the evening of November 16, arriving in San Remo on the 18th, where he was at once informed by Drs. Krause and Schrader concerning the status of the case.

It was only on November 20 that Dr. Bramann was invited by the physicians, who daily examined the case, to join them. Regarding this meeting, Bramann reports that by the aid of the laryngoscopic mirror he discovered a marked swelling above the left vocal band, the band itself being either absent or so concealed by the swelling that it was not visible. The tumor extended from the left anterior commissure to the posterior wall, and then upward, covering almost the entire thyroid cartilage. The mucous membrane covering it was neither inflamed nor reddened, save at one place posteriorly, where, below the arytenoid cartilage, there appeared to be a smaller ulceration. What existed under the swelling of the left side could not be ascertained; the right vocal band, however, appeared intact, its posterior portion perhaps a trifle thickened. During phonation it moved so freely that it appeared to hug the whole region encroached on by the tumor, that is, the left ventricle, this accounting for the production of tone, though a weak one. There were no glandular enlargements either in the neighborhood of the larynx or the vessels. On the other hand, the left half of the thyroid cartilage, particularly at its posterior portion, was much thickened. Neither pain, cough, nor expectoration was present.

A second examination by Bramann was made on December 9, and gave about the same results; while from another source came the positive assertion that the tumor was growing smaller and improvement taking place in the ulceration at the posterior wall. As at this time iodide of potassium had been given the patient, the improvement was attributed to the action of this remedy, which was credited with having "bettered and favorably modified" the "chronic perichondritis" (*vide* communications by letter of the physician by proxy, Dr. Schrader, to Dr. Leuthold). As early as December 10, Dr. Krause, as well as Dr. Hovell, appeared to think that the hyperæmia and swelling at the posterior wall had increased, and thought that they discovered a small ulceration in the neighborhood of the tumor, which was located below the ventricle. On December 13, Dr. Hovell reported to Mackenzie by telegraph regarding the above discoveries and other complications, the formation of granular tissue, etc., which was responded to by the arrival of Mackenzie on the 15th.

Dr. Bramann was not invited to take part in the examinations and deliberations which followed on the 16th and 17th. His next examination was made in response to the expressed wish of the illustrious patient on December 23, and revealed a decided change in his condition. The voice had suffered a marked increase in hoarseness. The swelling of the ary-epiglottic fold was decidedly larger, and even more marked was the infiltration extending downward, and showing most prominently in the region of the ventricle.

Beyond this, neither the vocal band nor the deeper portions of the larynx could be seen. The swelling on the left side stood in close connection with the diffused infiltration of the posterior wall, and was only separated from it by a very shallow groove. At the posterior wall the swelling was not confined to the left side, but encroached on the region of the right arytenoid cartilage, extending downward, beyond the insertion of the vocal band. A marked increase in size during the last 14 days became apparent, and an ulceration on a plane with the left ventricular band was plainly visible. From this point, the ulceration extended downward along the posterior wall, past the level of the vocal band; and it could not be clearly determined whether, at this point, there was an accumulation of secretion, or a groove filled with mucus. At all events, the surface appeared uneven and irregular.

If, as has been asserted, everything was normal at the site of the original enlargement, the correctness of this explanation becomes difficult, as the deeper portions of the larynx were covered by the thickening of the ventricular band. It was impossible to see either the region of the vocal band, or those structures that lay below it. Judging from the extent of the ulceration and the swelling of the posterior wall, we were justified in assuming that changes were taking place, perhaps very deep in their extent, to which the swelling of the ventricular band might be secondary. The latter organ was ulcerated at its centre, the ulceration not very prominent, nor visible in its entirety, this applying more particularly to its lower portion. According to the opinion of some of the physicians, this ulceration had, a few days previously, been more prominent, and had become lower and flatter. The report of Dr. Bramann ends with the remark that during the last 14 days such changes had taken place, and that probably before the end of the season the question of tracheotomy would come up.

During the same week, the *British Medical Journal* (No. 1409, page 1455), wrote as follows:

> "It gives us great pleasure to be in a position to report, based upon information from an independent authority and therefore worthy of belief, that the favorable accounts of the press regarding the present satisfactory state of health of the Crown Prince of Germany may be accepted as true."

On Dec. 26, Sir Morell Mackenzie again appeared in San Remo. Immediately subsequent to his first examination, he stated to various gentlemen at court, as well as to the attending physicians, that he still doubted the presence of cancer. The enlargements, which had become visible two weeks before, were beginning to break down, and cicatrization was taking place. The good appearance of His Imperial Highness on Christmas eve and New Year's day again prompted the press to indulge in polemics regarding the diagnosis of cancer, more particularly the *British Medical Journal*, of Jan. 7 (No. 1410, page 31):

> "It is with great satisfaction that we learn from an authentic source that the symptoms, which were so alarming in the beginning of November, have almost entirely subsided. The swelling in the sub-glottic region which, at the time, was viewed with suspicion, has decreased in size to about one-quarter. The ulceration of the surface has entirely healed, and the sub-maxillary glands, which were swollen and hardened, are, at present, in a normal condition. The slight swelling, which recently appeared on the left ventricular band, has entirely disappeared, and the small, suppurating surface which it left had almost entirely cicatrized when Sir Morell Mackenzie left San Remo. The Crown Prince feels entirely relieved from the slight though permanent feeling of discomfort in the larynx, from which he had been suffering since the beginning of last year, and his face has lost that waxy paleness which was remarked by so many on the occasion of his last visit to England. We could assume from Mackenzie's opinion that the manifestations in the larynx of the Crown Prince were due to a rather serious chronic laryngitis. In support of this assumption it may be interesting to quote from the work of Mackenzie: 'In addition to congestive enlargements of the mucous membrane as well as sub-mucous tissue, some cases present an organized stenosis, or hypertrophy of the soft tissues.' He also states that we frequently find projecting growths as the result of chronic inflammatory action. These words were written eight years ago, and the case of the Crown Prince appears to be a true illustration of the morbid condition which they describe. In addition to the inflammatory process, there is no doubt as to the existence of perichondritis. Sir Morell Mackenzie, while discoursing on this affection, calls attention to the weak action of one or both vocal bands (page 391), and the case of the Crown Prince shows that activity of the left vocal band has been impaired since the last few months."

At the close of the first week in January, the rumor was current in San Remo that the swelling, which had been heretofore confined to the left side, was encroaching upon the right one, and on the 13th the *Reichs-Anzeiger* printed a bulletin as follows:

> "The morbid manifestations consisted, for the last two weeks, of a more marked swelling of the left half of the larynx, accompanied by a generally diffused and spreading irritating inflammatory condition of the laryngeal mucous membrane, this being accompanied by an increased mucus secretion, which, however, as also the inflammatory action, is fast disappearing. The general condition is quite satisfactory."

Immediately following these manifestations, on January 14, 15 and 16, pain in the head, elevation of temperature, difficulty in breathing and marked stridor appeared, until, on the 17th, the illustrious patient coughed up a piece of necrotic tissue, which had for three days been noticed hanging loosely in the larynx. This was submitted to Virchow for examination. The outcome of this investigation was also published, but it is not generally known that the fragment was first given into the hands of the Warsaw physician, Dr. Hering, who took possession of portions of it for examination, so that Virchow did not receive the fragment in its entirety, but only the larger part thereof.

Virchow denominated this piece as a dead and decomposed portion of the larynx, which had come from its surface and in part from the deeper portions, say about four millimetres. Only at one point, which was comparatively hard in almost every microscopic section made, so-called nests (bulbs) of epidermal cells, frequently homogeneous, were discovered. These nests were disposed almost uniformly along the surface or near it. Neither these nor well-marked isolated alveoli were, although carefully sought for, discovered. Therefore the results of this investigation were likewise interpreted as opposed to the diagnosis of cancer.

But, on this occasion, the pathological anatomist was, owing to the bad use which had been made of his former opinions, a trifle more cautious, and he wrote to Krause asking him to exercise more discretion in his interpretation of the opinion furnished him.

The medical correspondent of the *British Medical Journal* did not take this admonition to heart, for, on Feb. 4, 1888, we find in this journal, (sub. No. 1414, page 257):

> "We are enabled, through telegrams which have just been received from San Remo, to chronicle the joyful news, based upon the highest authority, that the favorable reports of the last few days can be supported. The slough, the existence of which we mentioned some weeks ago, and which had caused so much alarm in November, became detached from its seat on the tumor on Jan. 17, and was more than two centimetres in length. The denuded surface, from which the separation of this piece of tissue had taken place, has almost entirely healed, and the condition of the contiguous structures is in every way satisfactory."

On Jan. 29, Sir Morell Mackenzie again appeared in San Remo. On the evening of his arrival he called upon Dr. Bramann and requested him to take part in an examination the following day, remarking at the time, that while there was no immediate necessity for tracheotomy, one could not tell what the near future would bring forth. When Bramann visited him on the morning of the following day, he remarked that the left side had improved to a marked degree, that the swelling was smaller, and that even the left vocal band had now become visible and was not in any way impaired in its integrity. On the other hand, the right side showed a more marked swelling than at Christmas, but this was, in his estimation, of an inflammatory nature. It was just this, he claimed, which would eventually necessitate tracheotomy, but he was in favor of resorting to this operation only when marked difficulty in breathing supervened.

At five o'clock, in the afternoon, after the mucous membrane had been put under the influence of cocaine, Bramann made his first examination. The left side, and also the posterior wall presented a much more strongly marked swelling than in December, so that the lumen of the larynx was decreased by about one-half. The diffuse swelling in the region of the left ventricular band ended below with an irregular, serrated, gray process. Beyond this, nothing could be seen on the left side. The enlargement was of such a nature and encroached to such an extent on the breathing-space, that its apex, during phonation, projected beyond the tense right vocal band. In addition to this, the diameter of the rimaglottidis was much decreased antero-posteriorly. The swelling below the right vocal band, which extended from the left side, could only be partially seen. There was no doubt that the right vocal band was much more impaired in its motion than in December. To this circumstance it was owing that the voice presented an absolute want of resonance, and that with even great exertion a sound, such as was produced in December, was now impossible. Difficulty in breathing during ordinary respiration, while walking even rapidly on a level surface, did not exist, but showed itself only when steps were mounted, or elevations ascended. Bramann's attention was called to this fact by the illustrious patient without his being questioned regarding the subject. During conversation there was no doubt that a certain degree of respiratory difficulty existed. The sub-maxillary glands did not appear to have suffered any enlargement. On the other hand, on the left side, near the lower half of the thyroid cartilage, there was a distinct elevation, extending to the cricoid cartilage, which, in its turn, appeared unaffected. The tissue covering it was freely movable, the enlargement, diffuse, hard, not uneven, and not sensitive to the touch. The regular and progressive increase of the tumor, and the external appearance on the left side, where it was located, of a plainly visible swelling of the larynx prompted Bramann to urge upon Sir Morell Mackenzie the advisability of securing von Bergmann's presence, as he certainly would be ready to remain in San Remo for some days if tracheotomy had not already become necessary before his arrival. But this proposal was then rejected, as well as on the following days.

CHAPTER VI.

REPORT OF DR. BRAMANN.

I had, as early as January, frequently expressed my regrets to the attending physicians that I was not, as formerly, invited to the examinations made in the case of His Imperial Highness, more especially from Jan. 14 to 17, when much difficulty in breathing existed. Under these circumstances I desired to be absolved from any responsibility regarding a too long delayed tracheotomy, and also the possibly too late arrival of Dr. von Bergmann, who had been designated by the highest authorities as the one who should operate. On Jan. 31, Mackenzie informed me that, in his opinion, tracheotomy would become necessary in from two to four weeks, and that I was to perform it. I entered a decided protest against this, and insisted upon the observance of the agreement made between the highest authorities and Privy Councillor von Bergmann. I consented to operate only when the difficulty in breathing manifested itself suddenly, and its progress and development came without warning. In the event of a slow but progressive difficulty in breathing, Privy Councillor von Bergmann, was, under all circumstances, to be summoned. I further called Mackenzie's attention to the fact that, as at the present time a slight disturbance in breathing was caused by ascending the stairs, and that its continued increase might be expected, it would be no more than proper that I be permitted to see the illustrious patient at intervals of a few days, as Privy Councillor von Bergmann, as well as I, would only then operate when we became convinced from personal experience and investigation as to the advisability and necessity thereof. In spite of this, I was not allowed to see the illustrious patient again until the day of the operation.

From those in attendance I learned, during the following days, that the color of the Crown Prince's face underwent frequent changes, and that breathing, more especially when the stairway was ascended, was attended with difficulty. On February 3 and 5, during the afternoon, I interviewed Dr. Schrader regarding the above observations, and he verified their correctness. I interrogated him whether it had still not been decided to call me in, and whether in the face of the slight though constantly-present trouble in breathing it would not be advisable to summon Dr. von Bergmann. Dr. Schrader shared my opinion, and desired to do everything in his power in the matter, but begged me not to urge him, but to wait patiently, as he hoped to be able to arrange a consultation with me in the near future.

On Sunday, Feb. 5, Dr. Schrader and his aids reported to me that the breathing-sounds had increased to such an extent that at table nearly every respiration of the Crown Prince could be heard at the other end of the board. While ascending the easy steps of the villa he was compelled to make several pauses. When out driving it is true he left the carriage, but only to walk short distances. Aside from the difficulty in breathing, he complained of marked lassitude and weakness of the limbs.

On Monday the 6th, in the morning, the same gentleman reported to me that the difficulty in breathing had increased, and on the morning of Feb. 6, I telegraphed to Privy Councillor von Bergmann: "Stridor during quiet respiration. Hold yourself in readiness to depart at once." Krause, likewise, corroborated the presence of stridor and difficulty in breathing, which was to be referred to the increase of the swelling on the right side. In answer to my question if it would not be correct and, in fact, necessary, to summon von Bergmann at once, he replied that Mackenzie would arrive on the morrow and then it would be determined. An extended conversation then ensued regarding the diagnosis of the illness, in which Krause expressed himself as leaning to the diagnosis of perichondritis, supporting his opinion with the statement that the separation of necrotic fragments had not been observed in carcinoma!

On Feb. 7, I learned from Schrader that the last night had been a rather bad one, and that Mackenzie had acknowledged the marked increase in the swelling. Although Schrader now strongly urged that von Bergmann be present, this was not heeded, neither did I receive any invitation to be present at the next consultations. It is a remarkable circumstance that on this day, that is, Feb. 7, the *Vossische Zeitung* published in Berlin, as is alleged from English sources, that tracheotomy was to be performed on the following Thursday, Feb. 9.

Truth wrote on Feb. 9: "The papers are misinformed when they assert that this important operation is to be performed by Dr. Bramann. It is true that this young man has been planted in San Remo for this and for no other purpose. Notwithstanding, I have the best reasons for believing that when tracheotomy does become necessary, an English hand will perform it, and an English head determine its necessity."

Early on Wednesday, Feb. 8, I learned from Schrader that the night had been disturbed by headache and by stridor, which was more marked; that Mackenzie would request me to be present at the consultation of Thursday morning, and that then it would be determined whether the services of von Bergmann, which I constantly demanded, be called into requisition. On Wednesday afternoon I sought Mackenzie, because the attendants had reported very difficult breathing, and questioned him as to whether this difficulty was very marked and the necessity for tracheotomy imminent, as then it would be better to err on the side of safety and telegraph to von Bergmann too early rather than too late. His response was that, according to his opinion, there were still 8 to 10 days' time.

On the evening of the same day, at half-past nine o'clock, his attendants expressed themselves to me as much alarmed regarding the difficult breathing; that during conversation held by the Crown Prince, after his meal, with an officer from a Schleswig regiment, he suffered a very serious attack accompanied by such a fear-inspiring, whistling respiratory sound that all present turned toward him greatly alarmed. When he left the salon to repair to the examining-room, he asked the question: "Has Dr. Bramann been requested to attend this evening?" to which he received a response in the negative. At the consultation of Thursday, Feb. 9, I noticed, as soon as the Crown Prince entered, that with every respiration there was marked difficulty in breathing, and stridor. He spoke with great effort. The illustrious patient appeared to be much affected and much paler than heretofore. In response to my question how he had spent the night, he answered: "Not comfortably, but better than the preceding nights." He had had a few attacks of violent coughing with expectoration. The sputa, which had been preserved by the attendant in a vessel half filled with water, was tinged with blood.

At the laryngoscopic examination, during which difficult breathing was specially marked, showing an extensive respiratory obstruction during inspiration as well as expiration, the left half of the larynx, as well as the left ary-epiglottic fold, appeared much infiltrated, as also did the entire posterior wall of the larynx. More especially was this true of the region of the ventricular band, which was much tumefied, and extended to the right beyond the middle line. The right vocal band was motionless; below it, especially toward the anterior half, a pale tumor was visible, covered with mucous membrane and extending toward the left side, where it was lost in the general swelling. The rimaglottidis was no longer present, and the entrance of air only possible because of the different elevations at which the enlargements lay on both sides.

After we had all made our examinations, and I had likewise examined the larynx externally by palpation, on which occasion the swelling of the left side of the cartilage, to which I had formerly called attention, as well as the thickening of the entire lower portion of that half of the larynx, showed prominently, we repaired to the residence of Mackenzie. On our arrival there, Mackenzie announced without further comment: "The difficulty in breathing has suffered a marked increase since yesterday evening and has reached a degree when further delay is not permissible," and that he favored immediate tracheotomy. This was concurred in by Krause and Hovell.

I admitted that the fact of difficult breathing was a natural consequence of the rapid growth of the tumor, but reverted to my former and oft-repeated declarations that I should not operate until I had personally determined its necessity from actual observation. As I had only seen the illustrious patient during the short time consumed at the general consultations, and as, therefore, I was not in position to know whether the difficulty in breathing was at all times so distressing, or was perhaps only a result of the excitement and exertion dependent on the examination, I could not decide to operate at once, but demanded a postponement of some hours, during which I desired to have all facilities extended me to observe the illustrious patient closely, and I also insisted upon summoning Privy Councillor von Bergmann immediately. In this I was warmly supported by Dr. Schrader. In response to this, Sir Morell Mackenzie declared that he would, in case I did not operate, be constrained to drop all responsibility. Krause and Hovell supported him in this. I persisted in demanding an extension of a few hours, more particularly as I had firmly decided that in case of amelioration of the symptoms I should wait until the arrival of Privy Councillor von Bergmann, as tracheotomy under the existing circumstances was not to be looked upon as an indifferent or simple procedure.* To this the remaining gentlemen assented.

In the meanwhile, compresses of ice about the neck, and applications of cocaine were to be employed. Mackenzie undertook the task of seeing that these measures were properly carried out, and promised likewise to secure for me immediate permission to observe the Crown Prince. A report was then formulated which read as follows:

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* In the monograph on tracheotomy, in Billroth-Luecke's Encyclopædia, we find: "In the whole doctrine of the operative technique of tracheotomy there is no worse nor more dangerous heresy than the belief that the operation is easily performed on a suffocating patient Bad text and reference-books on surgery have done much to spread this belief, based, perhaps, upon the experiences of one or two operations, or dependent entirely upon the productions of the pen." In another place, Billroth is even more emphatic, and confesses that there is no operation which he regards with more fear than tracheotomy under the above circumstances. I trust that this may serve for the enlightenment of those who spoke and wrote of my operation as a small and insignificant procedure.

"The difficult breathing which has existed during the last few days has increased, owing to the swelling on the right side, to such an extent that prompt tracheotomy appears to be called for in case improvement does not supervene within the next few hours."

I signed this bulletin, adding that my signature was to be applied only to its last portion; that is, that tracheotomy would become necessary if, etc. I could say nothing regarding the increase of the progressive difficulty in breathing to its present point, as I had not been called to a consultation since January 30, nor seen the illustrious patient since that time.

It was only at 12:30 o'clock that Mackenzie sought me and stated: "The Crown Prince expects you at one o'clock, and I feel it incumbent on me to again inform you that I must decline to take any further responsibility in the matter, and that henceforth you must assume it alone." At one o'clock I repaired to the sleeping apartment of His Imperial Highness, where I was received by him at once. The difficulty in breathing was more marked than in the morning, stridor more prominent during each inspiration, retraction of the scrobiculus cordis and episternal space, the lips pale, faintly blue, the voice without resonance, and speech accomplished only with the greatest difficulty. In addition, I learned the following from the illustrious patient: The preceding four nights, but more especially the last one, had been bad, terrible. Only by building up a number of pillows and assuming a sitting posture had he been enabled, though with frequent interruptions, to sleep a few hours. On the least exertion which he had made in bed, as, for instance, turning to one side, drawing out his handkerchief, etc., respiration had become especially difficult, and at such moments a feeling of fear and anxiety had taken possession of him.

The gentleman of the privy chamber, who had spent the last two nights near his illustrious master, related to me, without being questioned, what he had observed. The illustrious patient who, until recently, had rested in a horizontal position, could, according to my informant, for the last six days, only obtain rest when his head was much elevated; that is, when he assumed a sitting posture. Respiration was quite loud from time to time, of a snoring character, and every hour, or even oftener, there were moments when the illustrious patient did not seem to get any air, when he suddenly awoke coughing violently. On the night from the 7th to the 8th the Crown Prince had risen from his bed and gone to his room, saying: "I can endure this no longer; I wish you to make cold applications to my neck." The easy stairway leading to the first floor could not be ascended by the patient for the last few days without assistance; this was confirmed by the statement of His Highness in person.

In the face of these data, which had been verified by me, and the increase of difficulty in breathing, the possibility of further postponement seemed to me very remote; more particularly, a delay of two days, until the arrival of Privy Councillor von Bergmann. I communicated accordingly with His Imperial Highness, informing him that I considered it hazardous to postpone the operation, and advised its immediate performance. To this he readily assented.

I at once proceeded, with Dr. Schrader, to make preparations for the operation, and cast about to find a table suited to the purpose. I regret that my wish to be allowed to operate on a table was not gratified. I was compelled to make use of a very wide bed for the purpose.

When everything was in readiness for the operation, new complications arose regarding the matter of chloroform narcosis, which was vigorously opposed by Sir Morell Mackenzie, on the ground that tracheotomy, during the anæsthesia produced by chloroform, became a very dangerous procedure, and that therefore in England the operation was performed without it. To this I responded that I had in every case, up to date (and I had performed tracheotomy over 400 times on children and adults), employed chloroform; that the use of chloroform in Germany was general, and that in the case before us, especially as it was burdened with great responsibilities, I was not ready to operate under other conditions than those which I considered correct and proper and to which I was accustomed. As I still persisted in my opinion, in spite of all opposition, and was strongly seconded by Dr. Schrader, Sir Morell Mackenzie finally acquiesced; but only after again mentioning that he desired to be relieved from all responsibility regarding what might occur as a result of the narcosis. The illustrious patient declared himself, in response to the request of Schrader and myself, as ready for the narcosis.

In the beginning of the narcosis, which was brought on gradually and very carefully, frequent intermissions in breathing were manifest, the respiratory sounds (stridor) were very high in pitch, and the retraction of the episternal space and scrobiculus cordis quite marked, a circumstance which I demonstrated to the physicians present. In a comparatively short time, during which there was no stage of excitement, insensibility took place. I now entrusted Dr. Krause with the control of the narcotic, Dr. Schrader assisting me at the seat of the operation, Mackenzie controlling the pulse on the left side, and Dr. Hovell at hand with two basins of sponges and artery forceps. After placing a hard bolster under the shoulders, I endeavored to place the head in a lower position. This I was only enabled to accomplish in part, for as soon as the head became lower difficulty of breathing supervened, so that I was compelled to content myself with an almost horizontal position. In this case it was so much more trying, as the larynx was very deeply situated, the cricoid cartilage almost reaching the episternal space, and the muscular elements of the neck strongly developed. After thoroughly disinfecting the seat of the operation and shaving the parts up to the seat of the hyoid bone and removing the points of the beard, I proceeded to operate, during the performance of which I personally took from the table at my left my instruments, ligatures and other materials required for the operation. With an incision 6 centimetres in length, and extending from the cricoid cartilage to the episternal notch, I divided the skin and fasciæ and entered, after carefully arresting the hemorrhage, and keeping well in the median line, between the space left by the two strongly-projecting sterno-hyoid muscles, to the fasciæ covering the thyroid cartilage. The latter was covered by a number of strongly-dilated veins, and was situated rather deeply. In view of the difficulties that accompany the laying bare of the trachea, in such cases, below the isthmus, and above all, considering the danger of hemorrhage from the over-distended vessels which, even with the greatest care, cannot always be preserved in their integrity, and requiring for the exercise of care more assistance than stood at my command, I decided to perform Bose's operation, and divided, after carefully using double ligatures, the vessels situated at both sides of the isthmus. I was now enabled to crowd the thyroid cartilage down sufficiently so that the trachea lay exposed as far as the fifth ring. At this moment a faintness appeared to have seized the patient; his face became pale, pupils dilated, the pulse small and slow, but this condition rapidly subsided. I now proceeded, after thoroughly arresting the hemorrhage, to open the trachea from the third to the fifth ring, exactly in the median line, and after I had become convinced from careful inspection that it contained nothing abnormal that could be seen through the incision, and that no trace of the obstruction above was visible, I introduced a large silver canula, with movable shield, having a lumen of 11 millimetres, and then tamponed the deep wound around the canula with iodoform gauze, covering the whole with a plain bandage. The time consumed in operating, including narcosis, was 20 minutes.

After the dressing had been completed, the illustrious patient awoke, vomited, after which he felt easier and repeatedly expressed his gratification to me, as well as to the assembled physicians, at the ease with which he could now breathe.

CHAPTER VII.

DR. VON BERGMANN'S REPORT.—*Continued.*

Immediately following the operation, and by direction of the highest authorities, the family physician by proxy, Dr. Schrader, telegraphed to Prof. von Bergmann that, although tracheotomy had been successfully performed, he should repair thither at once. Marshal Major von Lynker telegraphed to the same effect: "Their Imperial Highnesses have requested that you repair to this place without delay." A third telegram of a like tenor was delivered too late, that is, several hours after his departure. The telegram which had left San Remo at 10 o'clock in the morning, summoning Prof. von Bergmann, was in his hands since two o'clock. At this time the Emperor, who had been informed of the necessity of immediate tracheotomy, received him and questioned him regarding the results and effects of the operation, commanding Prof. von Bergmann, at the time, to remain in attendance on the illustrious patient until the wound had healed and surgical attendance became no longer necessary. After His Majesty was in receipt of the information that the operation had been successfully performed, he again graciously deigned to receive the professor, and instructed him to depart as quickly as possible, to send regular reports, and to use his best endeavors, that is, if the condition of the illustrious patient allowed it, to arrange for his return to Berlin.

Prof. von Bergmann took his departure, in company with the chief marshal of the Prince's household, Count von Radolinski, and arrived in San Remo on Feb. 11. A few minutes after his arrival he saw the illustrious patient, who impressed him most favorably. His Highness looked fresh and strong, was elastic in his movements, and expressed his satisfaction not alone with the favorable termination of the operation, but with the prompt appearance of the professor.

The further report of Privy Councillor von Bergmann, is as follows:

The first few days following the operation were favorable for the illustrious patient. The dressings below and surrounding the canula were dry, not covered with blood, nor any other products. There was no fever, and the respirations ranged between 16 and 22. On the morning of the 12th we changed the canula. I convinced myself, after the removal of the pieces of iodoform gauze with which the wound was packed, that its appearance was entirely satisfactory. It was in every way correct, lay exactly in the middle line, was free from accumulations of blood, and inflammatory appearances. It is my wont not to allow the first canula to remain in place too long. The construction of the canula used by me prevents, by virtue of its curve and its connection with the shield, all chances of pressure on the walls of the trachea. The shield is freely movable with both tubes, and in all directions, so as to allow changes in the position of the canula horizontally as well as vertically. The curve of the canula at its upper two-thirds equals about the sixth of a circle having a radius of 5 centimetres; the lower part is straight in line in the direction of the tangent of this circle. It is evident that under these circumstances pressure could be possible, if at all, on the anterior tracheal wall only. This could, on account of the movable connection of the canula to the plate attached to the neck, only take place when the patient leaned well forward. In a standing, but more particularly in a lying posture, the anterior tracheal wall must, of necessity, be free. In spite of this, I substitute another canula after a few days, sometimes employing a thicker one, sometimes one less curved, and then either a longer or a shorter one. In making these changes I keep in view the peculiar formation of the parts, and thus constantly change the points of contact. We had taken with us 18 silver and rubber canulæ of different curves. From among these Bramann had selected those best suited to the requirements of the case. The newly introduced canula differed from the previous one in that it measured 9 centimetres in length, that is, it was half a centimetre shorter, and a trifle less curved.

On Feb. 12 and 13, we remarked that during the paroxysms of coughing, which occurred about every three hours, a tenacious, brown-colored mucus appeared, which was also found when the inner canula was cleansed, containing small, dark and soft bloody coagulæ, about the size of a hemp-seed, as also an admixture of streaks and small drops of fresh blood. This expectoration had an offensive odor. According to the statement of the gentleman of the privy chamber, the expectorated matter of the week before the operation, although rare, presented like characteristics.

On the morning of the 14th the cough of the illustrious patient having, during the night, increased, as also the expectoration, Mackenzie insisted, at the consultations which took place at 9 o'clock in the morning and evening, that the presence of blood had its origin in an injury done the posterior wall of the trachea by the canula.

I demonstrated the construction of the canula used by us, to show him how contact of the same with the posterior tracheal wall became impossible, separated the edges of the wound with two blunt hooks and begged him to satisfy himself by sunlight of the integrity, even marked paleness, of the tracheal mucous membrane at the suspected point. As the pieces of iodoform gauze at the lower angle of the wound did not show a trace of blood, hemorrhage from granulated tissue could be excluded. According to my opinion, the explanation was that material flowed downward from the larynx, as we could no longer doubt that since Jan. 17 (when a large necrotic fragment was coughed up, and at that time fever and headache had shown themselves) there had been ulcerative breaking down of the carcinoma. In support of my opinion, there were the soft consistency and offensive odor of the matter coughed up, as well as the circumstance that at that portion of the convexity of the canula which pointed toward the larynx, a black spot of sulphide of silver had manifested itself. This point would necessarily be most exposed, being nearest the larynx, to the influence of the products in process of decomposition. Mackenzie did not agree with us, but adhered to his opinion, and requested me to employ his modification of the Durham canula. A specimen which he showed, he himself declared as useless in the case, as its calibre was insufficient, the tenacious nature and large quantity of the mucus calling for a wider tube.

I assumed that our differences regarding the origin of the blood and the points pertaining to the expectoration would be kept secret until a mutually satisfactory explanation had been arrived at, but in this respect I was disappointed, because I learned at noon, on the same day, that Mackenzie had informed Her Imperial Highness that the more frequent cough and brown expectoration resulted from an injury done the tracheal mucous membrane by my employment of a canula unsuited to the case. In the evening, Hovell submitted to the home council two drawings, one of which was to serve as an illustration of the point of pressure which my canula exercised, the other one the more rational position of the one proposed by Mackenzie. On the following day was found in the Vienna and Berlin papers, which were controlled by the correspondents of Mackenzie: *

"SAN REMO, Feb. 15, 10:45 A. M.

"The bloody coloration of the mucus, which has manifested itself during the last few days, is due, we take it, to injury done by the canula."

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* The correspondent in question announced, through an extra edition on Feb. 19, in Berlin: "Certainly," said Sir Morell Mackenzie to me, "you, as well as the reading public, have had sufficient opportunity during the last 8 months to verify the truth and correctness of the announcements of the *Tageblatt* regarding the progress of the Crown Prince's case, and to believe in their authenticity. He authorized no one to question the trustworthiness of my statements."

I had upbraided Mackenzie for giving publicity to this fact. He did not deny that he had given the information to the correspondents, and wrote to me, this time in French:

"Le correspondant de ces deux journaux qui a etudié la matière de la tracheotomie au fond, croyant peutêtre pacifier les esprits agités en Allemagne en s'exprimant d'une manière circonspecte en disant sur ce sujet: *

"Slight hemorrhages are not rare in such cases. Perhaps the canula does not fit, and will be replaced by another."

As in this case, so in nearly all the general medical resolutions, our work was made more difficult; as even before the subject under consideration had been finally settled by the physicians, before even it had been broached, the family of the illustrious patient, as well as he, were informed of the published opinion of Mackenzie, based upon his plausible explanations and reference to his past experience. No less did the general management of the case suffer, although Mackenzie left the entire treatment of the wound to Bramann and myself, through his unwillingness to acknowledge that we were the ones to decide as to what measures were to be adopted in the management of the case. We learned from him, at the consultation on the morning of Feb. 17, that on the evening previous he had made a laryngoscopic examination, and had satisfied himself as to the absence of any trace of blood in the larynx. Shortly after, the above-mentioned Berlin newspapers reported that at this examination Mackenzie had observed that when the canula which the Crown Prince wore was closed, the voice appeared to be better than prior to the operation. I upbraided my colleague in the most unequivocal manner, and asked him firmly to desist from any further one-sided examination, but only to take part when the other physicians, who had been appointed by the highest authorities, were also present. According to my opinion regarding the source of the mucus and blood, I felt constrained for the present at least, to forbid any forcible expiratory efforts on the part of the patient, as I considered them decidedly harmful. Only by observing absolute rest might it become possible to prevent further disintegration of the tissues of the larynx. Notwithstanding this, Mackenzie insisted that the larynx of the illustrious patient was to be the objective point of his activity solely. This sentiment received its sharpest expression at a latter consultation with Prof. Kussmaul, to which he submitted, as it appeared, very readily. He wrote at the time: "I only asked consent for Prof. Kussmaul to make an examination of the lungs. * * * I am

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* "The correspondent of these two papers, who has thoroughly studied the subject of tracheotomy, thinking, perhaps, to quiet the agitation existing in Germany by expressing himself temperately, in speaking of the matter, said:"

ready to admit that Prof. Kussmaul may be a better auscultator than I am. I shall be glad to learn his opinion as to the state of the lungs, but I cannot admit that he is a laryngoscopist of the same standing as myself."

This was the cause of his remaining absent from the case after Kussmaul's first visit. It required repeated explanations, and the gracious interference of Her Imperial Highness, the Crown Princess, to gain from Mackenzie consent to what had been heretofore the unquestioned privilege of every physician consulted; that is, the thorough and entire examination of the patient. At the second visit of Kussmaul, he made his appearance and assisted at the laryngoscopic examination. We had at the time, in consultation, agreed that on account of an inter-current diarrhœa, a few drops of tincture of opium were to be given. Shortly after, when I entered the sick room I noticed that the attendant gave the illustrious patient a tablespoonful of another mixture (a solution of hæmatoxylin). In response to my question why opium was not being given, I learned that Dr. Mackenzie had otherwise ordered. Not even in this instance did our colleague appear to consider himself bound by the general resolutions of the medical council.

The quantity of expectorated matter underwent marked variations. Sometimes from four to six hours passed, particularly during the forenoon, during which the patient did not cough. Then, however, there came violent attacks of coughing, lasting, at times, several minutes, during which from one to two cubic centimetres of pus and ichor were projected into the compress, sometimes filling the inner canula to such an extent that an immediate change for another became necessary. On Feb. 15, we had collected a sufficient quantity of this material to enable us to utilize it for purposes of microscopic investigation. We found under the microscope, in addition to pus and blood corpuscles, numerous globular bodies, which were unmistakably concentrically disposed epithelial cells, and close to these, small processes which consisted of closely packed, large, pavement epithelium. In a few preparations we found, in addition, many elastic fibres.

On Feb. 12, Dr. Mackenzie had written, in No. 8 of the *Berliner klinische Wochenschrift:* "According to my opinion, the clinical symptoms are at all times fully in accord with the diagnosis of a benign growth, and the microscopic examination is in accord with this opinion," and also: "At this moment, medical knowledge does not permit me to say that any diseases are present other than a chronic inflammation of the larynx, combined with perichondritis." Before the type-setter in Berlin had printed these words, the most important and scientific proof in refutation of this opinion of Mackenzie was given by the same surgeon whose accurate clinical diagnosis, during the preceding summer, had been so long questioned.

On Feb. 16, when we were in possession of a satisfactory number of typical preparations, I first invited Dr. Krause, and through him the two English colleagues, to satisfy themselves as to the results of our microscopic investigations. Krause declared himself, when he learned that an opinion of a different nature was in preparation, as fully convinced. Mackenzie, however, acquainted us through him that he did not consider himself competent to judge of microscopic questions, as in England it was considered proper, in such matters, to allow the anatomist alone to speak.

We did not require an anatomist. We were now in possession of that proof of the malignancy of the laryngeal ailment, which Mackenzie alone still seemed to desire; that is, the anatomical one. Between the bundles of elastic fibres and between muscular fibrilli, we saw carcinomatous deposits, showing that they had their origin in the deeper portions and not on the surface. The development and history, as well as the clinical manifestations of the new formation, coupled with the certainty that everything else which might possibly produce similar manifestations and might be confounded with laryngeal cancer could be excluded, were sufficient proof to us as to the correctness of our diagnosis. We had never been quite able to comprehend the point of view from which a physician would make his diagnosis, and base his treatment, only when it had been verified by the knife of the anatomist—a point of view which, pushed to the furthest limit, would bring the physician to the post-mortem table. But even this excentric demand had been met. Every day furnished us with new preparations, and every day brought us two verifications:

1. The diagnosis of cancer; and
2. The fact of the breaking down of the new formation.

The longer this continued, the more necrosed tissue adhered to the coagulæ contained in the expectoration, and the more numerous became the elastic fibres and muscular fragments. At last, on the 24th and 28th, plainly visible pieces of cartilage became apparent. But Mackenzie still insisted that my canula produced all these disturbances. He complained to the exalted relatives of the patient that I opposed him, and designated the use of my canula (which did not communicate with the upper larynx) as an obstacle to the further treatment of the laryngeal affection. As soon as he should be permitted to introduce his apparatus, all the threatening manifestations, more particularly the presence of blood, would depart. Only then could use be made of insufflations and the application of other remedies in the larynx. At the laryngoscopic investigations, which I made in the third week following the operation, and at which Mackenzie was present as were also the other physicians, the entrance to the larynx revealed two thick, arrow-shaped masses, which obstructed it almost entirely, so that when the canula was closed with the finger, during an expiratory effort, hardly a breath of air could force its way through the narrow slit that remained. This caused the aphonia of the illustrious patient. This also accounted for the fact that pus and cancerous ichor were not discharged by way of the mouth, but flowed, of necessity, into the trachea and against the canula. Under these circumstances and, as in the meanwhile a proper canula of the size of 12 millimetres had arrived from London, I proposed to Mackenzie to give it a trial. On the evening of February 20 it was introduced. It differed from the one formerly used, in that it was bent at right angles and consisted of a rigid, horizontal and articulated vertical portion. By means of a screw the horizontal part could be lengthened or shortened.

The night following its introduction was better than the previous one. The bloody matter which was coughed up became less and less. This serves to explain that on the morning of the 21st the newspapers, whose correspondents, as has been officially determined, were, immediately following the morning consultations, received by Mackenzie in the Hotel Victoria, telegraphed to all sides: "The irritation to cough and bloody expectoration has ceased since the introduction of Mackenzie's canula."

The Standard, which on the previous day had written, "The condition of the larynx is satisfactory, but that of the trachea serious, thanks to the errors of the German surgeons in the selection of the canula and the treatment of the wound," now announced triumphantly:

> "Sir Morell, as soon as he saw the canula, expressed his disapproval at once, and warned the physicians against its introduction, as it was calculated to irritate the larynx of the Crown Prince. As a matter of course, they adhered to their opinion and would not be advised. The canula was introduced. After a day or two transpired what Sir Morell had prophesied. The Prince coughed up mucus mixed with blood, because the lower end of the canula had broken through the mucous membrane with which it had come in contact. This state of affairs lasted from Thursday the 9th until Monday the 20th. During all these long days the Prince coughed, and this cough was so annoying, particularly during the night, and his sleep was so disturbed, that even the Germans began seriously to question their wisdom. On the same evening, the German physicians submitted, removed their canula and permitted Sir Morell to introduce one of his own. This is the second phase of the case, and what was the result? That night brought refreshing sleep. This the German physicians were compelled to admit in their bulletin."

On Feb. 25, the *British Medical Journal* followed suit. It stated:

> "The Crown Prince is commencing to make satisfactory progress. The cause of the untoward local symptoms was owing entirely to things mechanical. The canula first introduced in the trachea did not fit well. * * * This difficulty has, however, as we learn, been removed. A larger canula, specially constructed in this country, has been substituted, and so the irritation, which was produced by the badly adapted canula, has disappeared."

But the *British Medical Journal* erred. On Feb. 25, the situation was very different. The favorable night of the 20th and 21st was followed by a day less favorable. During the afternoon coughing had been a very prominent symptom, as also during the following days and nights. In my opinion this was owing to the use of the insufflations of bismuth sub-nitrate, tannic acid and morphia. The expectoration was copious, brown in color, and at times showed more fresh blood than formerly. At a careful examination of the wound, Hovell asserted that the tracheal opening did not correspond to the middle line; that for this reason the canula necessarily exercised pressure and caused irritation; that the crooked incision was the cause of the continued disturbance, even though the English canula was in use. At once, this assertion appeared in a number of English and German newspapers. The most drastic report was given in *The World:*

> "The true cause of all the suffering was a bungling and badly performed tracheotomy. The operator lost his head and made a long incision in the throat instead of merely the short one which was necessary. He was too nervous, so that only after a great effort was he enabled to find the trachea, which he finally opened too much to the right side instead of in the centre. Small wonder that it required so much trouble to find a suitable tube."

Even the *British Medical Journal* fell in line regarding Hovell's vision of the lateral incision. In No. 1419 we find:

> "We repeat that the late unfavorable condition of the illustrious patient is owing almost entirely to the badly-fitting tracheal canula. The operator appears to have been, which under the circumstances was quite natural, a trifle nervous, and as the trachea had been opened somewhat toward the right side, the difficulty of finding a fitting canula presented itself. Sir Morell Mackenzie, assisted by Mark Hovell and the well-known Parisian dentist, Dr. Evans, spent the greater part of a day in the construction of a canula that should meet all the special requirements of the case. Since this has been worn the Crown Prince feels in every way improved. He sleeps, his cough is less marked, and the expectoration has lost its sanguinary character which caused such great alarm."

But this favorable appearance of the expectoration did NOT appear up to the day of death, as the reports of the case prove.

On March 4, and April 16, Prof. Waldeyer verified the presence of blood, as also of necrosed fragments, in the material coughed up, which we examined daily.

The night from February 22 to February 23 was a particularly bad one. The quantity of admixed blood was very great. It aroused a suspicion in my mind of pulmonary hemorrhage, which might possibly result from a softening secondary carcinomatous deposit in this organ. As during this night Dr. Schrader had sat up with the patient, Sir Morell had the temerity to insist that his clumsy hands had caused an injury while changing the inner canula. This episode also found its echo in *The Standard*, as well as in other papers, where it was said: "Had Dr. Hovell been permitted to visit the patient for the purpose of adjusting the canula, not merely twice during the night, but been allowed to watch at the bedside of the Prince, we should have heard nothing of disturbed rest." In fact, Mackenzie demanded that the watch at the bedside should be left entirely to him and Hovell. Then the new canula would certainly give satisfaction.

His wishes were complied with, but the expectoration became more copious and the quantity of blood more alarming. Mackenzie admitted this, and, on the occasion of the morning visit of the 24th, he apologized to Schrader, and said to me in the presence of the other colleagues that he felt convinced that his canula did not irritate less than mine. He desired, he said, to make some changes in it to better adapt it to existing circumstances; until then I might introduce my instrument. The condition of the illustrious patient underwent no change, although different powders were blown into the larynx either by way of the wound or through the opening in the upper portion of the canula. There were intervals of sleep, lasting an hour or so, and some days that were favorable, during which His Imperial Highness promenaded in the garden or sat on the balcony. His general condition was good and less disturbed by the higher temperature of the evening and by headache; the appetite being also satisfactory. Now and again, he was annoyed in swallowing, by pain radiating toward the left temple and ear. The copious expectoration prompted me, although I could not support this by percussion and auscultation, to consider the possibility of a pulmonary affection. The sputa had at times the appearance of raspberry jelly, and the illustrious patient occasionally complained of sharp pains below the left clavicle and over the entire left thorax. As the presence of gangrenous processes had been established since January it was probable that since that time the morbid material had either flowed or been aspirated into the air-passages. The development of putrid bronchitis, as well as peri-bronchial foci, was to be expected daily. The breaking down of secondary cancerous deposits in the lungs seemed to me, however, to be more probable. I mentioned these fears to my colleagues at the consultation of the 24th, and pointed to the compresses, which were saturated with a brown and raspberry colored expectoration which had escaped through the canula during the previous night. If my suspicions of a pulmonary affection were well grounded, then a change for the worse must of necessity be feared, a fear which led me to express a wish that the aid of a clinician versed in internal diseases be secured. This led to the conclusion that the disease had commenced to be a general one, and that in conformity with my opinion to the effect that an ulcerative, destructive carcinomatous deposit existed in the lungs, the specialist for throat diseases was no longer in place, and that the case should now be entrusted to the physician for internal diseases. It was unanimously agreed by the physicians to suggest, in the highest circles, that Kussmaul be called, a suggestion which was at once approved. By direction of the same high authorities I immediately telegraphed to Strasburg.

[Prof. von Bergmann's report is continued on pages 76–86.]

CHAPTER VIII.

REPORT OF PRIVY COUNCILLOR DR. KUSSMAUL.

As commanded by Her Imperial Highness, the Crown Princess of Prussia and the German Empire, I started on Feb. 24 for San Remo, where I arrived on the evening of Feb. 25. I was there informed by Prof. von Bergmann that I had been summoned to make an examination of the chest of His Imperial Highness, the Crown Prince, to ascertain, if possible, the source of the red expectoration which had been flowing through the canula since the performance of tracheotomy, and to determine whether it had its origin in the lungs.

On Feb. 26, in the early morning, about 100 grammes of the sputa that had been brought up during the previous night were sent me for inspection. The sputa, in the main, looked red, raspberry colored, and appeared to be a uniform mixture of blood and mucus, only one specimen presenting a gray appearance and suggesting pus in a state of decomposition. This proved to be, under the microscope, pus pure and simple. The red mucus masses consisted, in the main, of blood corpuscles and pus corpuscles, with an admixture of small pigmented bodies, isolated and coalescent epithelium flattened, and also round, transparent cells, and in one preparation there was a preponderance of so-called epithelial or cancroid pearls, some round in shape, others elongated. I counted more than a dozen of these in a very small microscopic specimen.

I was informed by Dr. Bramann that these pearls had been found, with the exception of one day, for the last 12 days. This one exception was a day when it became necessary to interrupt examinations. He showed me a number of prepared specimens, all of which contained more or less of these pearls. In addition he had two specimens which showed elastic fibres. These did not give the alveolar distribution of the elastic fibres as found in abscesses of pulmonary cavities. In one of the preparations they appeared to be interwoven; in the other, which contained them in larger number, they were disposed in bundle-shaped masses.

At about nine o'clock I had the honor to be received by the Crown Princess and, shortly after, by His Imperial Highness. I had seen the Crown Prince at the five-hundreth yearly jubilee of the University of Heidelberg. Then in the full strength and vigor of health, he now appeared emaciated and of bad color, only the expression of the face retained the old, winning, friendly look unchanged. It may be that the cause of the rather poor appearance of the Crown Prince could be explained by a troublesome and relaxed condition of the bowels, which had existed during the last few days, and disturbed his rest at night, and that during this time he had eaten no solid food, and was also harassed by a recurrent cough, febrile disturbance being also present in a slight degree.

The former tendency of His Imperial Highness had been rather in the direction of constipation, and the diarrhœa, which was not very marked, was owing, as Dr. Schrader assured me, to some porter which had been taken. I now proceeded to examine the chest, previously feeling the pulse and examining the neck. The pulse, but for a slight acceleration, presented no feature worthy of note. About the neck, especially near the larynx, I could feel no large swelling. To the left, close to the larynx, I thought I discovered a small, deep, slightly swollen lymphatic gland. The site of the incision at the trachea had healed kindly; the mucous membrane at the posterior wall, as far as I could see, looked very slightly injected and was not ulcerated.

The respiratory movements of the thorax were regular and even, in fact, such as are found in normal lungs. Percussion everywhere gave normal sounds. During auscultation I heard on both sides, deep down to the boundaries of the lungs, loud and clear vesicular respiration; only at the back and high up, and then only during deep respiration, did I find slight bronchial breathing. I could not find rales anywhere; only posteriorly, high up to the left side, I sometimes heard slight crepitation during inspiration. Respirations, during the last few days, had been from 20 to 23.

Dr. Mackenzie did not attend this examination. He had expressed the wish that I examine only the chest, and that permission should not be given me to examine the larynx. I sought him and obtained his permission to make a laryngoscopic examination in his presence. This was done at 3 o'clock in the afternoon. I could only see that the epiglottis was not thickened; behind it I discovered, in the region of the arytenoid cartilages, two flat, semi-circular swellings, which hid the interior of the larynx from view.

On February 27, with Dr. Bramann, I made another examination of the sputa. During the night only very few red mucus sputa had been expectorated, and no pus. Among the many specimens in which the epithelial pearls were looked for in vain, in only one was a large number found. On this day also the Crown Prince graciously permitted an examination of his chest. As on the day previous, I found everything in good order, and only once did I hear on the right side, posteriorly and low down between the shoulder blade and spine, a slight, sonorous rale.

Based on the result of these examinations, I arrived at the conclusion that the red expectoration did not have its origin either in the lungs or bronchi. My reasons were as follow:

1. With the exception of occasional crepitation and isolated sonorous rales, examination of the chest revealed nothing abnormal. These symptoms would have no weight; surprise would rather be excited that sounds of this nature were not heard in greater number and more frequently in a patient on whom tracheotomy had been performed. They can, without doubt, be attributed to the presence of mucus which had flowed from the upper air-passages to the deeper pulmonary ones.

2. The bloody mucus which for the last 14 days had been coughed up through the canula, contained, in two instances, elastic tissue and this could, with certainty, be attributed to an ulceration. Their whole disposition did not justify belief in their pulmonary origin.

3. In addition, the mucus contained, in the 13 examinations during 14 days, specimens of epithelial pearls. As these had been found during some time past and had been detached in large quantities, I consider myself justified in the belief that the case was one in which an ulcerative process in newly-formed tissue was going on, in all likelihood an epithelial tumor.

4. A tumor of this kind could not have its seat in either the lungs or bronchi. There would be opposed to such an opinion, the elastic fibres found in the expectoration, as well as the absence of diagnostic physical symptoms in the thoracic organs. A tumor of the lungs or bronchi undergoing ulceration, causing constant bloody expectoration mixed with elastic fibres and epithelial pearls, would, in one place or another in the chest, produce some symptoms of narrowing or obstruction of the bronchi, contraction or possibly cavities. To say the least, one would expect to find a circumscribed modification of the respiratory sounds, rales, crepitation, or other symptoms.

5. As Dr. Mackenzie, after a careful tracheoscopy, could discover no lesion of the trachea nor any ulceration or swelling that could stand in causative relation to the bloody expectoration, nothing remained for us but to look upon the seat of the production of the morbid material as being in the larynx, and owing to an ulceration of the epithelial growth which it contained. The mucus probably descended from the larynx along the tracheal wall, between it and the canula, and was then brought up through it during the paroxysms of coughing.

I did not conceal from Dr. Mackenzie that I considered what I had found in the larynx to be a malignant epithelial growth. He did not dispute the possibility of the correctness of my assertion, but did not confess to its absolute correctness. If my memory serves me, he intimated that the case might be one of epithelial neoplasm of a benign form, complicated with an ulceration of the mucous membrane of the larynx and perichondritis. I am not aware that such complications are ever present in benign epithelial growths. The entire progress of the case is not in favor of such an assumption.

The above-mentioned meetings between myself and Mackenzie had shown that he still persisted in his opinion regarding the non-cancerous nature of the new formation, but he had declared that if an authority like Virchow acknowledged that the specimens furnished by von Bergmann and Bramann demonstrated the reverse, he would declare himself as convinced. Virchow, at the time, was in Egypt, and could consequently not be reached. We were therefore compelled to propose another authority. At this time experiments had been made with canulæ of various curves surrounded by a thin rubber covering, and this had led to a unanimity of opinion in the "canula question," in so far that Mackenzie expressed himself as satisfied with the latest one that had been introduced. The wound surrounding the canula had long since healed and cicatrized. I could now consider my task, as far as the guidance of surgical after-treatment was concerned, as ended. I therefore made preparations to take the prepared specimens with me on my return to Berlin, and there to submit them to Prof. Waldeyer, who is a well-recognized authority on the history of the development of cancer. Mackenzie was in accord with this, and promised to abide by Waldeyer's decision.

On the morning of Feb. 28, I was graciously dismissed by my most high masters, and was about commencing my journey homeward, when a telegraphic command from His Majesty, the Emperor and King, kept me at San Remo. His Majesty desired that I should wait for the arrival of His Royal Highness, Prince William, who might be looked for on March 2, and endeavor to obtain a binding promise regarding the return of the illustrious patient to Berlin in the near future. To secure the fulfilment of this peremptory wish of His Majesty, I saw only one method, that was, to convince Mackenzie of the correctness of the diagnosis of cancer. I believed that he would then withdraw his opposition to the journey homeward, which would not be necessarily direct to Berlin, but first to Baden-Baden or Wiesbaden. I therefore secured the kind offices of the Imperial family physician, Dr. Leuthold, to bring Dr. Waldeyer to San Remo. Prof. Waldeyer arrived on the evening of March 3, and devoted the entire day to the most searching investigation, the result of which confirmed the conclusions we had arrived at after our microscopic examination.

CHAPTER IX.

REPORT OF PRIVY MEDICAL COUNCILLOR DR. WALDEYER.

In conformity with the request of the physician of His Majesty, the Emperor and King, Dr. Leuthold, I proceeded to San Remo on March 1, for the purpose of making an examination of the masses expectorated through the canula worn by his Imperial and Royal Highness, the Crown Prince of the German Empire and of Prussia, as well as the specimens from the same patient prepared by Privy Councillor Dr. von Bergmann and Dr. Bramann. On the morning of March 4, of this year, I received from the above-named attendant physicians of His Imperial and Royal Highness the following: First, a number (perhaps a dozen) microscopic specimens preserved in glycerine; secondly, a portion of the expectoration of the night from March 3 to 4. This was contained in a small glass capsule. Thirdly, on the morning of March 5, a small piece of gauze bandage containing the products removed from the canula a short time previously. Regarding number one, the above-named microscopic specimens looking to a coloration of the nuclei had been stained with Bismarck brown, which color proved to be well chosen. Their constitution, as far as could be detected under the microscope, was, in addition to masses of detritus, mainly pus corpuscles, blood corpuscles and microbes:

(*a*) Concentrically placed cells of the character of flattened epithelium, disposed in masses both round and oval;

(*b*) Isolated large cells of the same character;

(*c*) In some of the preparations thin, partly dark and partly light fibres;

(*d*) Dark granular cells scattered here and there, so called granule-cells.

The concentrically disposed bodies mentioned under *a* were either alone, or coalescent to the number of ten, imbedded in masses of detritus, pus-cells and blood corpuscles. The cells found at the periphery of these bodies were flattened, while in their centre a number of rounded and globe-shaped shining cells appeared. Frequently two or three of these bodies showed themselves, strung together like pearls and so disposed that they were connected to an elongated process, hooklike in form, by an accumulation of concentrically-placed flat cells. Sometimes these processes were found to bifurcate. By slight pressure or by tearing apart, the constituents of the above-named round or elongated bodies could be easily isolated. It could then be seen that these bodies consisted, in the main, of large flat cells, with a clear boundary. Almost each cell contained a nucleus colored with Bismarck brown. Even in the unstained specimens could the nuclei be plainly descerned. The cells in their form, size and refraction of light presented all the characteristics of pavement epithelium cells, such as found on the mucus surfaces covered therewith, among others, the true vocal bands of the larynx, and in those cancerous growths called "pavement epithelial cancer" or "cancroid."

The number of pearls and processes found was remarkably large, being present in nearly all the specimens furnished by von Bergmann and Bramann, and also in those specially prepared by me. As already mentioned, they were disposed in masses; and I counted in a number of specimens in one field of the microscope with a magnifying power of 100 about 20 of these bodies. Also the isolated cells mentioned in *b* showed the same characteristics, and were with little difficulty distinguished from the pus-cells. The fibres mentioned in *c* were, in part (this according to the statement of Dr. Bramann — as they were absent in those specimens freshly prepared by me), unaffected by the addition of acetic acid. This fact, as well as the strong refracting power of light, their partial curly and partial straight distribution, led them to be recognized as elastic fibres. With this position and general form, these fibres did not, in any instance, show a typical tendency to a regular recurrent form, that is, as if they had surrounded small, round spaces.

Another portion of the fibres appeared wavy, was disposed in small bundles, was weaker regarding the refraction of light, and was probably composed of connective tissue fibres. The cells mentioned in *d*, as well as the microbes and pus-cells, were present in nearly all expectorations from the air-passages, and presented no special diagnostic characteristics. We must view, however, as an important fact the free presence of red blood corpuscles in all the specimens.

The fresh matter of March 4 and 5 was tenacious, had a generally red coloring, with here and there grayish yellow spots. Denser masses were not visible to the naked eye, and were not discovered when the matters were examined in liquids, such as distilled water, diluted acetic acid, diluted solution of caustic potash, glycerine, etc., with one exception, which requires mention. The microscopic examination led to the same conclusions as contained in that submitted to me by Dr. von Bergmann and Dr. Bramann as the outcome of their investigations. I desire to emphasize that the numerous red blood corpuscles did not seem to have undergone any change, and appeared as if they had only just escaped from a vessel. Besides this, as already observed, fibres were absent.

In the expectorated masses, which I found in the gauze bandage, I found a hard, uneven fragment, irregular in form and of about the size of a large lentil. The macroscopic as well as microscopic examination proved it to be "hyaline cartilage."

Small sections of this fragment showed it to be covered with degenerative connective tissue and elastic fibres. On this surface the cartilage cells were flattened and disposed parallel with it. The other surfaces had a gnawed appearance, and were covered with little breaks and crevices similar to Howship's lacunæ in bony tissue. In these crevices were contained masses of detritus and round cells, with which were mixed elements closely resembling epithelial cells. At one point, such epithelial cells in large masses were found. The above-named results, combined with the origin of the specimens, there being a canula in the trachea, lead to the following conclusions:

1. The concentric bodies which were found (pearls or processes) are undoubtedly cancroid bodies, having their origin in a cancerous new formation.

As evidence of this we have first, their formation; secondly, their size and shape; thirdly, their great number; fourthly, our inability in the case before us to attribute their production to any existing normal process, or to any other pathological one.

2. The cancerous neoplasm (provided the air-passages do not communicate with a cancerous deposit existing elsewhere) must be situated in the air-passages.

3. In all likelihood, it has its seat in the larynx above the canula.

In support of this we have the fact that, first, the character of the pearls or flattened epithelial cells, bearing in mind that epithelial cancer of the air-passages is generally covered with pavement epithelium and springs from the true vocal bands; secondly, the fact that in no instance did the discovered elastic fibres show an alveolar distribution which would justify the assumption that possibly the new formation might be in the lungs; thirdly, the fresh character of the blood cells present, this circumstance being of itself, however, of no special significance; fourthly, the dimensions of the small piece of cartilage found in the expectorations of March 5. A piece of the same size coming from a bronchial or tracheal cartilage would not be easily found, as the fragment was the same in all its dimensions.

4. The cancerous formation must be undergoing an ulcerative and necrotic process of disintegration. This process has attacked the affected organ, the larynx.

In support of this, first, the presence of numerous, isolated cancer cells, as well as detritus, pus and blood in the expectoration; secondly, the presence of elastic and connective tissue fibres (in Bramann's specimens); thirdly, the small piece of cartilage covered with crevices owing to absorption.

CHAPTER X.

PROF. VON BERGMANN'S REPORT.—*(Continued.)*

I brought Mackenzie to Waldeyer, who explained to him, in the most exhaustive manner, what the microscope had revealed to him, and with the aid of specimens demonstrated to him clearly the presence of cancer. Mackenzie then declared, as he also did on Nov. 9, that there was now no doubt in his mind regarding the correctness of the diagnosis of cancer. I now urged on him the advisability of having the patient journey homeward, and I was fortunate enough to secure from him the following written assurance:

> "I, the undersigned, hereby obligate myself, immediately on the appearance of grave symptoms in the disease of His Imperial and Royal Highness, to insist on his immediate return to Germany, a measure which I would, at all events, suggest when the weather becomes warmer.
>
> "MORELL MACKENZIE."

At the next medical consultation I mentioned the results of Waldeyer's investigation and Mackenzie's recognition thereof. As the diagnosis accepted by the physicians was an unanimous one, I sought to secure a unanimity of opinion in the matter of treatment also. Mackenzie had, a short time previously, received a new canula from England, constructed on the principle of the first one proposed by him, and introduced on the 20th. It differed, however, in that it was longer and broader, was not bent at right angles as were the former ones, but presented an obtuse angle, therefore approaching our canula in construction. I declared myself in accord with its use in the case, but begged that he would desist from frequent changing of the canula, as had been done lately, and that he would also refrain from the insufflation into the larynx of powder and caustic remedies, or at least to reduce their use to a minimum. As all these suggestions received unanimous approval, Mackenzie personally begging me to have Bramann remain after my departure to meet any possible surgical contingencies that might arise, I made my preparations to journey homeward.

The outcome of this, our last consultation, was the source of the bulletin of March 6, which was construed in so many ways:

"The undersigned declare that, regarding the nature and judgment of the disease of His Imperial and Royal Highness, no difference of opinion exists among them; and they also agree that there is no immediate danger of an unfavorable change in the disease. The sole responsibility is at present, as before the operation, vested in Sir Morell Mackenzie, whose name is subscribed with ours."

It was my proposal, as our illustrious patient had been assured that the physicians who had expressed their opinion on Nov. 9 were in error and that we had to deal with only a laryngeal disease that could be cured by tracheotomy, to keep secret from him Waldeyer's opinion. For this Mackenzie thanked me. It is true that only lately the press learned the facts regarding Waldeyer's and our decided anatomical diagnosis. The newspapers accepted the tenor of the bulletin as being an acknowledgment of the correctness of Mackenzie's views.

The days following March 6 were fraught with most important and dire events. On the morning of March 10, the Emperor Frederick III. commenced his journey homeward, and arrived at the castle of Charlottenburg at 11 in the evening.

Eight days after the return of the Kaiser, Dr. Wegner wrote me to take part in the examination and treatment of His Majesty. This was subsequent to an imperial decree, which gave the responsible management of the case entirely into the hands of Mackenzie. My first visits were on March 18 and 25. I examined the larynx by strong sunlight. The epiglottis was still unaffected. Only the thickening in the region of the left ary-epiglottic fold was larger and showed a greater elevation, as also an ulceration toward the median line. A view into the deeper portions of the larynx was entirely impossible. Palpation revealed an unmistakable enlargement of the larynx. In addition to that, a hard infiltration had developed along the trachea from the cricoid cartilage to the upper boundary of the incision in which the canula was situated, and extending to both sides of it. Only the lower portion, between the canula and the sternum, seemed unimpaired. The expectoration and attacks of coughing remained the same as at San Remo. Especially on March 25 there were found many soft, dark, blood coagulæ in the dressings.

On the 29th, a large piece of cartilage was expectorated; and a few days latter a number of pieces of necrosed tissue. This gave the reporters, who received their news directly from the castle of Charlottenburg, an opportunity to report a favorable crisis in the course of the disease. The fragment of necrosed cartilage was accepted as corroborative evidence of the existence of perichondritis, and an attempt was made to again prove the correctness of this diagnosis. The reports of Wegner at this time, as also during the following weeks, mentioned headache, to allay which, as in San Remo, croton chloral and morphine were employed. Eight days latter, on Easter

Sunday, I plainly felt a hardening under the canula, and an increase of the lateral hardening which had previously existed. On the left side, this process extended to the upper portion of the clavicle, and the presence of enlarged lymphatic glands was easily established. Owing to this, the whole region presented a prominence, at the apex of which the shield of the canula was situated. The granulations, which formed the boundary of the opening, when the canula was removed, presented, especially at its upper portion, a dirty gray, irregular appearance, interrupted by depressions containing coagulæ of the seize of a hemp-seed, and larger. Yellow points appeared everywhere, as also fragments of tissue, one of which I removed with the dressing-forceps. An attack of coughing which I witnessed was the same in character as in San Remo, and at the end, about 5 cubic centimetres of brown ichorous matter were suddenly ejected. I took this specimen with me and examined it in company with Prof. Waldeyer. We found the same state of affairs as in San Remo, each microscopic specimen showing a number of cancroid pearls. The process of destruction was evidently on the increase.

On April 8, I found the skin above and at the side of the canula replaced by a yellowish-red wartlike formation, of about the height of 5 millimetres. A portion of this was dark-brown in color, evidently gangrenous, another portion infiltrated with blood. Its hardness and deep furrows characterized it as a proliferating cancerous mass, an assumption which Mackenzie, however, rejected with the words: "This is certainly no cancer; this is only granulation tissue." I declared my firm belief in my view, especially as the hard infiltration had spread to the deeper portions, and the canula had been forced partly out by the encroachment on its former seat of the now brown colored and deeply affected skin, and the underlying tumefied masses. The canula of which Mackenzie made use at the time consisted of a straight silver tube of about the length of 4 centimetres, into which, by means of a stout mandril, the inner tube was introduced, this being considerably, say about 6 centimetres, longer than the outer one. The projecting portion of this tube was flexible and articulated on the well-known principle of the lobster's tail. The outer short and straight canula was designed to project to the inner portion of the larynx, and from this the movable portion of the inner tube was to hang freely downward. Evidently, all this was designed to prevent contact with the walls of the trachea. I took the liberty of calling Mackenzie's attention to the fact that, owing to the shortness and straight direction of the outer tube, this might, as the result of the rapid growth of the tumor, be forced out of the opening. The only safety would lie in the use of a curved double canula, which would enter deeply into the lumen of the trachea. My advice received no consideration at the hands of the managing physician, who assumed all responsibility in the case.

On the morning of April 12, the nurse, whom I had installed to wait upon the patient at San Remo, sought me and announced that the preceding night had been a very bad one. The introduction of the inner canula could not be successfully accomplished, and the respiration of the Emperor was attended with difficulty. I mentioned this to my assistant Dr. Bramann, and requested him to hold himself in readiness for the contingency which I had predicted on Sunday, that is, greater difficulty in the introduction of the canula. Sure enough, at about three o'clock in the afternoon I received from a royal messenger, who had not found me at home but at a consultation in a hotel in the city, the following letter from Mackenzie:

> "Dear Prof. von Bergmann: We have difficulty with the canula, and I would be glad to have you see the Emperor with me as soon as possible.
>
> "Yours truly,
> "MORELL MACKENZIE."

The last four words were underscored. I departed with Dr. Bramann at once, stopping at my residence only long enough to take a few instruments with me. Here my servant had been asked through the telephone if the royal messenger had found me, and that I was to make haste. I had just left, when another question came through the telephone if I was on the way. I was received by Dr. Wegner, and learned from him what he had written in his journal: "The night was an uneasy one; in the morning, a feeling of pressure about the chest. After removal of the canula breathing easier, as also when another shorter canula was introduced. From one o'clock in the morning and in the course of the day decided difficulty in breathing. The canula projected in part, a circumstance that had been discovered during the night by Beerbaum, the nurse. Breathing was very much impeded."

There are many who have not yet forgotten that Mackenzie, in response to the article of the *Kölnische Zeitung*, regarding its report of the events of April 12, insisted that the German physicians who were present in consultation on the morning of that day had, no more than he, remarked any respiratory disturbance and were ready to bear witness to this fact. There is a written report, made one hour later, regarding this matter, but it does not seem to be worded in favor of Mackenzie.

I was ushered into Mackenzie's presence, and found him in the ante-room of the Emperor with a workman from the instrument manufacturer, Windler, in the act of bending a lead tube in such a manner that it might be introduced deeply into the trachea. In this way it was his object to quickly secure a fitting canula. I showed him I had one of Hahn's canulæ, having exactly the curve which he approved, and gave it to him for inspection. Mackenzie expressed himself willing to have its introduction attempted.

I was frightened to find the illustrious patient sitting on a chair suffocating. The cheeks and lips were blue, there was inspiratory stridor which could be heard in the adjoining room, inspiration was accomplished with difficulty, bringing all the muscles into play, and as the coat was open visible retraction of the scrobiculus became apparent. It appeared to me that in a few minutes death by suffocation would take place. I thought that no time was to be lost, ordered one of the attendants, after I had obtained Mackenzie's permission to call my assistant Dr. Bramann, and immediately proceeded to examine the opening Surrounding the canula the enlargements had become much higher and broader, and had, in some parts, become gangrenous, there being an extension of the hardness in the deeper portions, so that the region of the neck in which the canula lay projected like a short flattened comb. Only the outer canula was in place.

In response to my question, how long since the articulated inner tube had been introduced, the attendant answered: "Since early this morning." Mackenzie added that a number of attempts had been made to introduce it, but in vain. While on the Sunday previous, that is, only four days before, I had been able to look deeper into the wound and to see the posterior wall of the trachea, on this occasion it was not discernible. Large, round red excrescences projected from the deeper portions and from the sides into the lumen of the opening, entirely obstructing the passage to the trachea. The outer tube reached only to, and not into the trachea.

I explained to Mackenzie that prompt action was necessary. If we did not succeed in introducing the canula, then we should be forced to use large retractors to pull the edges apart and expose the tracheal opening; and if this did not succeed, we should have to perform an operation attended by loss of blood; that is, dilate downward with a probe-pointed knife. Mackenzie expressed himself as in accord with everything, and praised the long, blunt retractors which I had brought with me. He posted himself behind the illustrious patient, supporting the head of His Majesty, a position which did not suggest to me his intention to introduce the canula in person. I endeavored to introduce the canula but did not succeed. I was prevented from accomplishing this by the encroachment on the entire canal of the projecting, exuberant granulations. I then placed the canula to one side and grasped the retractors. In the meanwhile, Bramann had entered and taken charge of the retractors. Even now I made no progress with the canula, while the difficulty in breathing of the illustrious patient became more and more marked and alarming. I therefore attempted to remove the fungus masses from the opening of the trachea with my finger, having previously, as may be well understood, thoroughly disinfected my hands in a basin containing a solution of carbolic acid, and then placed the retractors in position. After I had accomplished this, holding them in my hand, Bramann introduced a canula of less marked curve, the identical one which he had employed at his operation on Feb. 9.

The respiration of the Emperor became at once easy and free, which he denoted by a joyous movement and a grateful pressure of the hand. It is true that during my manipulation blood was lost, but only in small quantities. It is certain that some of this blood and broken down tissue, as was also the case with the ichorous masses from the larynx, had flowed into the trachea, but this was coughed up at once. With the introduction of the canula the oozing of blood stopped, and when, after a half hour, I left the sick room with Wegner and Bramann, the sputa again showed their former brownish-red coloration. The entire procedure of dilatation and introduction of the curved canula had occupied only a few minutes.

Mackenzie and Hovell give the above an entirely different interpretation. Mackenzie claims that I was called merely as a matter of courtesy; that I persisted in my desire to introduce the canula, but that my efforts were not attended with success, my assistant finally accomplishing it, etc. A number of English newspapers, and, following them, the Berlin newspapers, heaped a mass of slander on me, all of this in face of the fact that the Emperor before my arrival was suffocating, and a few minutes thereafter was breathing freely.

I and my assistant were not the only ones who found the Emperor in a suffocating condition. On the same day His Majesty made the impression on the minister of war, Gen. Bronsart von Schellendorff, who saw him between 12 and 1 o'clock, as one who was struggling for air and breathing with difficulty. Two hours later, Gen. von Albedyll, who had been summoned to attend on His Majesty, hastily called medical aid during an attack of coughing, as he feared suffocation. The same fears regarding death by suffocation were expressed by Adj.-Gen. von Winterfeldt who, at three o'clock, urged Dr. Wegner to hasten my attendance. All the attendants of the Emperor declared that since morning they had marked with alarm the hourly increase in the difficult breathing of their illustrious master. When the Emperor learned that I had been summoned, he sent to the entrance of the castle to ascertain if I had not yet made my appearance.

I believe that even those parties who saw in me the ill-bred man who, against the will of the managing physician, pushed himself forward to do a certain thing which was then done in as clumsy and rough a manner as possible, will not deny the evidence regarding the danger of suffocation, and recognize that this was favorably modified by me after it had, according to the Archives of the Royal Household, existed unchanged for 15 hours. I submit it to the judgment of my colleagues to determine whether the mechanical removal of projecting cancerous masses can be invested with that importance attributed to it by Mackenzie in his communications to the *Holländische Dagblatt* and the *Seccolo;* that is, a shortening of life of about six months. Modern surgery teaches quite the reverse regarding much more extensive interference with cancerous growths in canal-shaped organs. It is looked upon as beneficial and tending to prolong life.

Evidently, the breaking down of the carcinomatous deposits in the larynx had, during the last few days, made more rapid progress, and had, in addition, extended to that portion which had encroached on and grown out of the tissues surrounding the canula, for, on the evening of April 12, as well as on the following night, during which I remained in Charlottenburg, I learned that the Emperor had suffered from fever for the last six days. It was only on Friday, April 6, after the illustrious patient had complained of more than ordinary lassitude and weakness, that a temperature of 38,4 Cent. was noted in Wegner's journal. These elevations of temperature, accompanied by slight chills, were noted every evening during the succeeding days, and were, according to Wegner's notes, "Saturday, April 7, 38,2 Cent." The boundary of the opening in the trachea showed more marked swelling, and was reddened and sensitive. While out driving in the afternoon at 5 degrees Reaumur, chilly sensations were complained of. Monday, April 9, temperature, 38,4 Cent.; Tuesday, the 10th, in the morning, 38,2 Cent., in the evening 38,6 Cent., etc. In spite of the fact that on the morning of the 13th, although the preceding night had been a good one (the Emperor wrote that this night had been the best of any during the past week), an elevation of temperature 38,2 Cent. was noted. On this day, when I had left the castle at about 10 in the morning, the illustrious patient traveled to Berlin, accompanied by Mackenzie. I had urgently advised a postponement of the journey, and proposed, by a bulletin, to make known the successful change of the canula. But Mackenzie did not desire a bulletin. He thought it would be better to quiet the public by the Emperor's presence in Berlin. The journey did not agree with the illustrious patient. In the evening, he again complained of chills, as likewise on Saturday, the 14th. On Sunday, the 15th, the temperature in the morning had risen to 39,4. A bulletin issued at Charlottenburg before my arrival connected the fever with an intercurrent bronchitis. As the fever, frequent respirations and general lassitude of the illustrious patient continued, Privy Medical Councillor Prof. Senator was called in consultation. He ordered antipyrin, which reduced the temperature on the morning of the 17th to 38,5. Coincident with this, expectoration had become more profuse. During attacks of coughing the patient would suddenly expel as much as a tablespoonful of a purulent, brownish fluid. I secured a portion of this on Monday to take with me. The pus presented no special characteristics, but in the brown fragments found in the dressing were manifest occasional cancroid pearls and connected layers of pavement epithelium.

On the same day, that is, Monday, Privy Medical Councillor Prof. Leyden was asked to attend in consultation, and arrived at 10 o'clock Tuesday morning. He, as well as Senator, could not discover any disturbance in the lungs. We, therefore, in accordance with the expressed wish of Mackenzie, held a general consultation, looking to the discovery of the causes of the unfavorable progress of the patient. Mackenzie supposed that there was possibly outside of the trachea, probably in the mediastinum, a cellulitis, owing to the forcible introduction of the canula on April 12, and that the fever was dependent on this inflammation. In opposition to this, I dwelt upon the difficulty of substantiating the presence of small deposits in the lungs. I insisted on the probability of the existence of such deposits, as for some months there had been an ulcerative breaking down of the laryngeal cancer, and a flow of the products down into the bronchial tubes. The fetid odor of the breath, as well as the frequent respirations, 44 to the minute, and the hiccough, almost incessant since Saturday, led me to suspect putrid bronchitis. The increase in the expectorations was, in my estimation, owing to the progress and extension of the gangrenous breaking down of the tumor. Privy Councillor Prof. Senator gave a similar opinion.

On Tuesday, April 17, fever had diminished, and, a short while after, pus was expectorated in large quantities. To this circumstance can be attributed Mackenzie's adherence to the belief that his diagnosis of a large abscess in the cellular tissue surrounding the trachea, and that it had broken through into the air-tract, was correct. The *British Medical Journal* described this abscess, and left no doubt regarding its etiology. In No. 1426, on April 28, it wrote as follows:

"From information from the most reliable source, it has become certain that at the introduction of the canula on April 12, a false passage was made. The hemorrhage at the time substantiates this. Positive proof can be adduced showing that the blame for this does not attach to the English physicians."

In the meanwhile, in the *Kölnische*, the *National*, and the *Neue Preussische Zeitung*, an exposé of the events of April 12 appeared, and I was given a certain amount of credit for relieving the Emperor of his difficulty in breathing, regarding which any number of rumors had become current in the capital. As a result of this, there appeared the declarations which Mackenzie and Hovell had printed in the above papers, and which were not only couched in insulting terms regarding me, but spoke in the most hateful manner of my part of the treatment in the case of the Emperor. In the same aggressive way, a number of English journals discussed the events of April 12, simply declaring that they had gained their information from the two English physicians of the Emperor (see the *Sunday Times* of April 29, this year). As I saw in these attacks of Mackenzie an unjust attitude toward me, I, on the morning of April 25, after the Emperor's high temperature had subsided and his general condition had improved, and I had received another invitation to be present at the consultation, gave Mackenzie a letter, which he subsequently published. In this letter I wrote him that his explanations in the above-named papers compelled me to request him to hold no further speech or communication with me other than that demanded by professional consultations. A fact, until now unknown in the annals of medical consultations, that of two physicians called to a bedside, one openly insulting the other in political newspapers, impelled me to take a further step in the matter, because these attacks on a colleague had emanated from the castle of Charlottenburg; that is, the ante-room of the Emperor. I begged Her Majesty, the Empress, to insist no longer on my acting as consultant with Sir Morell Mackenzie, and asked her to relieve me of this duty. My place was taken, on April 30, by the Chief Privy Medical Councillor Dr. Bardeleben.

My retirement from treatment of the Emperor was placed in the worst possible light by Mackenzie in his well-known interview with a correspondent of the *Pall Mall Gazette*, on May 15, 1888. I need say nothing in refutation of Mackenzie's statement regarding the slight respect with which I was regarded at court. I simply desire to substantiate that this last attempt to heap reproach upon his German colleagues, who had originally called him to Germany and who were now pushed to one side by him, had been preceded by a line of similar conduct. Running through the entire record of the deeply sad tale of suffering of our patient and much-tried Emperor Frederick, we find the efforts of Sir Morell Mackenzie to attribute every change for the worse in the condition of the illustrious patient not to the disease and its natural and necessary consequences, its progressive nature, etc., but to some action of his colleagues.

Gerhardt was accused of transforming a benign growth to a malignant one by his cauterizations. When, in November and in February, in addition to Schrötter and instead of Kussmaul, I had suggested Gerhardt as consultant, I was answered that such a proposal would not be entertained, as he was responsible for the entire unfavorable course which the disease had taken. Further, Bramann by means of an incorrect incision, Schrader through a clumsy change of the canula, and I through the selection of an unsuitable one, had caused the bloody expectoration and injury to the trachea. Finally, my forcible introduction of the canula on April 12 was the cause of the unfavorable symptoms and change in the disease which had commenced on April 6, as it had caused the formation of a large, flask-shaped abscess of the mediastinum. But the autopsy showed the mucous membrane of the trachea, at the point where the lower boundary of our canula had rested, smooth, with no trace of a scar or any previous irritation, and the cellular tissue surrounding the incision in the trachea, showed, as the pathologist at the autopsy stated, " normal conditions." Comparison with the lines in question will establish the correctness of this quotation by the minutes of the autopsy. Aside from the elongation caused by the stretching of the walls of the large cavity, into which the larynx and the trachea had been transformed, as reported by Bardeleben, the gangrenous destruction of the carcinomatous infiltration extended into the trachea to the extent of two and a quarter centimetres. Each of our canulæ however, even the shortest, extended into the trachea from 4 to 5 centimetres. They were, therefore, without exception, in contact with healthy tissue. But from the time that I established the extension of a cancerous tumor to the canula, on March 25, it (the canula) was introduced directly through the proliferating and decomposing cancerous growths.

I, as well as my colleagues whose reports are here embodied, remained silent to all accusations that were hurled against us. Only when the *British Medical Journal*, in No. 1426, of April 28, asserted that my silence was an evidence of guilt, I declared in the presence of those of my colleagues who had elected me as their presiding officer, before the members of the *Berliner medizinische Gesellschaft*, on May 2, 1888:

" If the *British Medical Journal* were not a sheet whose scientific value I esteem highly, I should still observe silence on this subject. But I must defend myself against it, not because I am in error, but because I, as well as every honorable British and German physician, must decline to discuss openly the events at the bedside of a patient."

I have no reason to retract anything regarding this explanation, although it raised a perfect storm of indignation against me. Mackenzie, in particular, endeavored to utilize it to my injury in No. 1428 of the *British Medical Journal*, and other publications, insisting that I had made an anonymous attack on him, as I stood on terms of intimacy with the correspondents of both the great German and English papers, the *Kölnische Zeitung* and *The Times*, represented respectively by Mr. Fischer and Mr. Lowe. I have not, up to date, the honor of an intimate acquaintance with these gentleman. I had met Mr. Fischer only once at a dinner in the house of one of my colleagues, in November, 1887, where he, as well as many others, had been introduced to me by my charming host. Mr. Lowe visited me at the time of his newspaper war with Mackenzie, eight days subsequent to Mackenzie's explanation in the German newspapers, therefore after my retirement as consultant to His Majesty. He asked permission to see the letter which Mackenzie had written me on the 12th. I did not hesitate to show him this, as I had already shown it to a number of friendly colleagues and to those of my superiors who had asked to see it. At the same time, however, I begged Mr. Lowe not to press me further. I did not care to give any information regarding it to the press. Mr. Fischer and Mr. Lowe are quite ready to substantiate the truth of this assertion. The *Kölnische Zeitung*, the *Neue Preussiche Zeitung* and the *National zeitung* have already made known through their columns that I never, either directly or indirectly, had any relations with them. We must assume that the editors of these papers purposely tell an untruth, and that the statements of Mr. Fischer and Mr. Lowe are also incorrect, or come to the conclusion that the story of the "anonymous attack," which Mackenzie and the press controlled by him conjured up, must be relegated to where it belongs — to the domain of the fable, a fable conceived and designed to excuse Sir Morell's attacks on me, and the publicity which he had given to facts connected with the case. Not a single reporter can say that while Gerhardt, Bramann and I were at the bedside for treatment and consultation, one word regarding the case was uttered by us. Not a single interviewer ever had occasion to report any conversation with us, while the official reports have verified the correctness of the list of 14 correspondents who were supplied with cards of admission and were received daily by Mackenzie in the castle of Charlottenburg; and English, as well as German and American newspapers, contained long columns almost weekly of reports of the conversations which he held with the reporters.

The disease of His Majesty was arrested in its progress only a short time. The exacerbations of fever during the evening did not stop. In the first place, it was a slow, hectic sinking, and later, when pneumonia made its appearance, the end came quickly. The following report of Privy Medical Councillor Dr. Bardeleben records the final events.

CHAPTER XI.

REPORT OF CHIEF PRIVY MEDICAL COUNCILLOR PROFESSOR DR. BARDELEBEN.

Monaay, *April* 30, 1888.—I saw His Majesty, Emperor Frederick (in response to the command which had reached me on the previous evening), for the first time, in the castle of Charlottenburg. The shield of the double canula in the larynx was half surrounded by red, spongy growths, which impressed me as cancerous formations. The lower margin of the shield sank into these growths. When I called the attention of Sir Morell to the circumstance, he promised me that on the next day he would see to it that a canula in conformity with my wishes should be used. At the consultation with the attending physicians which followed, I asked the question if there was one among them who did not look upon the disease of His Majesty as cancer, and asked that those that dissented should give voice to their opinion. There was no response from any of the gentlemen present. I therefore specially emphasized in my report that we were of one opinion in our diagnosis.

Tuesday, *May* 1, 9 *A. M.*—Sir Morell removed the old double canula, following which fetid masses of tissue and about 50 grammes of malodorous pus were expelled, with a cough, through the opening in the trachea. Adherent to the canula removed was found a piece of cartilage of about 1 centimetre in length and a trifle over 1 millimetre in width and thickness. The new canula, which had a shield of the shape suggested by me the day previous and the edge of which did not cut into the granulations, was introduced by Sir Morell without difficulty. The canal, as far as could be seen, was filled with smooth, red, proliferating tissue, which appeared to have a harder structure than that surrounding the external opening. The source of the pus could not be determined. At all events, the opening in which the canula was situated was, in itself, of insufficient extent to produce and hold such a mass of pus. On palpation I found the neck in the region of the larynx less resistant than in a healthy state, and not swollen. On the other hand, the tissue surrounding the opening felt hard to the touch. I discovered no enlarged glands in the neck, only on the left side and in the region of the clavicle I found a hard, not clearly circumscribed space of about the size of a filbert, which, however, did not project. I was compelled to make my examination a very hurried one, as the physicians assured me that it was disagreeable to His Majesty.

Wednesday, May 2.—I found the canula in good position, the granulations not pressed upon by the shield. Much pus had been again coughed up through the canula. Swallowing was said to have given some pain. Temperature, which was taken under the tongue, and the pulse, do not seem to accord well; the first is said to be normal, or nearly so, while the latter is constantly above 100, which in a man of the physique of His Majesty, especially while resting quietly, is in excess of normal.

Friday, May 4, 9 *A. M.*—We were informed at the consultation that the previous night had been a good one. The improved appearance of His Majesty corroborated this. The purulent expectoration was still copious.

Sunday, May 6, 9 *A. M.*—I again discovered the presence of copious, purulent and bad-smelling expectoration. The decoction of condurango had not been attended with any appreciable success, and it was replaced by a decoction of calisaya.

Monday, May 7.—The purulent discharges continue.

Wednesday, May 9.—At the change of the canula, which was effected without any difficulty, it was noticed that the deposits surrounding the opening had entirely disappeared, and that the opening itself had now smooth, clearly-cut edges. The surrounding skin was not even reddened.

Friday, May 11.—The purulent expectoration has diminished, but retains its bad odor.

Monday, May 14.—The general condition has improved. The frequency of the pulse has diminished, but His Majesty has disagreeable sensations in the pharynx, and the uvula is swollen. I can discover no grounds on which to base Sir Morell's fears regarding a perforation of the œsophagus. There is nothing present that would suggest that the lower portion of the canula exercises any pressure on the posterior wall of the trachea.

Wednesday, May 16.—There is an improvement in the general condition.

Friday, May 18.—No appreciable change. The malodorous expectoration continues.

Saturday, May 19.—Change of canula presented no difficulties. The granulations on the neck are beginning to sprout and grow with renewed vigor. I suggested the use thereon of subnitrate of bismuth.

Monday, May 21.—General condition less favorable. The granulations covered with bismuth are black, showing clearly that decomposing liquids or gases have come in contact with it.

Wednesday, *May* 23.—In the main, the same conditions.

Friday, *May* 25.—The granulations surrounding the opening, particularly at its lower border, have become more marked, and surmount an easily recognized hard elevation.

Saturday, *May* 26.—I was called to Charlottenburg on account of the necessity of changing the canula. This was accomplished with ease, but was accompanied by a very copious purulent expectoration of a putrid odor.

Monday, *May* 28. — The exuberant granulations continue, but appear to have a tendency, owing to the bismuth, to become detached on the surface.

Wednesday, *May* 30.—The environment of the opening presents the same features. Evidences of a perforation of the œsophagus are not present. The malodorous discharge is still very copious. Appetite continues poor. The evening temperature has, during the last few days, been about one degree above normal.

Friday, *June* 1.—Last consultation at Charlottenburg. No appreciable change, the general condition certainly no worse. Granulations about the opening more exuberant. The opening itself seems to have grown in size.

Sunday, *June* 3.—First consultation in the castle of Friedrichskron. The unfavorable sequelæ which the change of residence had led us to fear did not occur, though the granulations at the opening have increased and grown, but, owing to the exhibition of bismuth, are less sensitive. Its continued local use is to be faithfully observed.

Wednesday, *June* 6.—The copious expectoration with fetid odor, and the rise in the evening temperature, continue.

Friday, *June* 8.—It was reported that during the previous night, while drinking milk, some of it flowed from the tracheal opening. From this it was concluded that a perforation of the œsophagus had taken place. I called attention to it, that with a perforation of the œsophagus in all probability quantities of liquid would find their way into the air-passages, and that it was more probable, if a perforation did exist, that it would be found in the neighborhood of the larynx, or at the boundary between larynx and trachea. The canula was so situated that it would not exercise pressure on the posterior wall of the trachea. It was then generally conceded that the point of perforation, if it existed at all, must be located near the larynx; but that the flow of milk through the tracheal opening might be owing to the entrance of milk into the glottis, which had been much modified in form through the morbid processes going on there. It was at once decided to introduce a Trendelenburg's tampon-canula.

Saturday, *June* 9.—In the evening I was called to Friedrichskron, where I introduced and inflated the tampon-canula without difficulty. The exuberant granulations surrounding the opening had changed to black, dry, fetid masses, and separated without hemorrhage.

Sunday, *June* 10.—Swallowing is much impeded by the presence of the canula. The flow of milk, as also of the yolk of egg, through the opening not checked. This left no doubt that the perforation, if it existed at all, was above the canula. The strength of the patient rapidly failing, fever increasing.

Monday, *June* 11.—Although liquid food is being taken in large quantities, and only a small portion lost through the tracheal opening, his powers are fast failing, the frequency of the pulse, and especially of respirations, increasing (44).

Tuesday, *June* 12.—During the morning a large quantity of bad-smelling pus was discharged through the opening. As a large portion of the milk that had been taken escaped through the opening, it was resolved to nourish the patient through a flexible tube introduced in the œsophagus. I was commanded to carry this out, and for this purpose to return to Friedrichskron in the evening and remain there during the night. At noon, a half litre of milk was introduced, and in the evening one litre of milk with cream. Pulse in the evening 116, temperature 39,5, respirations only 24.

Wednesday, *June* 13.—Early in the morning one litre of milk and cream was again introduced. The morning temperature was 38, respiration 24, but in the evening respirations rose to 60, pulse to 130, and the skin appeared cyanotic. After the introduction of the milk in the evening the patient vomited. His strength was rapidly failing. I again spent the night at Friedrichskron.

Thursday, *June* 14.—The putrid odor of the masses discharged through the opening has become steadily greater. Failing strength is more marked, in spite of the frequent introduction of milk. In the morning pulse 140, respiration 48, at noon as high as 80; in the evening reaching 140. In the course of the forenoon, in response to the question of the minister of justice, when death might be expected, I answered that the life of His Majesty would last only about 24 hours longer. I gave the same information later to His Royal Highness, the Crown Prince, and to His Highness, Prince Bismarck, in response to their inquiries. I also spent this night at Friedrichskron.

Friday, *June* 15.—After a number of attacks of insensibility, and after a constant diminution of the powers of life and without any death struggle, death took place at 12 minutes after 11 o'clock. At half-past five o'clock in the afternoon, and assisted by Dr. Wegner and myself, the embalming of the remains was commenced by

Medical Councillor Dr. Hartmann and the embalmer, Wickersheimer, with a liquid that had been prepared by the latter, and after Dr. Wegner had established the most unmistakable proofs of death. The introduction of the necessary quantity of Wickersheimer's fluid through the large vessels of the neck was accomplished without difficulty.

The gaping wound in the trachea, from which the canula had been removed, was covered at its margin with only a few hard elevations. The aforementioned masses had separated entirely. It was an easy matter to remove a large mass of fetid granulations from the greatly-dilated cavity of the larynx, the walls of which were non-resistant. This was accomplished by introducing pledgets of cotton and then withdrawing them. The entire cavity was then filled with alternate layers of cotton and subnitrate of bismuth.

At the close of this procedure, there was entire absence of the pre-existing and highly penetrating odor. The tracheal opening, as well as that which had been made to reach the carotid artery, was closed with sutures.

By command of His Imperial and Royal Majesty, William II., Sir Morell Mackenzie and T. Mark Hovell were directed before the autopsy to declare what in their opinion had been the disease of the late Emperor. In response to this, they submitted the following report:

"SCHLOSS FRIEDRICHSKRON, June 16, 1888.

"It is my opinion that the disease from which the Emperor Friedrich III. died was cancer. The morbid process probably commenced in the deeper tissues, and the cartilaginous structure of the larynx became affected at a very early date. A small growth which was present when I first examined the late Emperor, was removed by me by several endolaryngeal operations, and though all the portions taken away were submitted to Prof. Virchow, he was unable to detect in them any evidence of the existence of cancer. Examinations of the sputa made at the beginning of March by Prof. Waldeyer, however, led that pathologist to believe that cancer was then present. Whether the disease was originally cancerous or assumed a malignant character some months after its first appearance, it is impossible to state. The fact that perichondritis and caries of the cartilages played an active part in the development of the disease no doubt largely contributed to make it impossible to form a decided opinion as to its nature until quite recently.

"MORELL MACKENZIE."

"June 16, 1888.

"In so far as my observations since last August permit me to form an opinion, I concur entirely with Sir Morell Mackenzie's views.

"T. MARK HOVELL."

CHAPTER XII.

MEDICAL MINUTES OF THE EXAMINATION OF THE REMAINS OF HIS MAJESTY, THE LATE EMPEROR AND KING FREDERICK III.

Schloss Friedrichskron, June 16, 1888.

In the neck a straight wound of the length of 6½ centimetres closed with sutures and showing dry edges, to the right of which there is a flat, pale elevation of the height of 2 centimetres, width 1,5, and thickness 0,5 centimetres. In the interior of the opening, a quantity of cotton and bismuth, after the removal of which an opening is revealed, having a depth of 5 centimetres, almost the same length, and gaping to the extent of 2½ centimetres after the removal of the sutures. The edges of the wound are rather hard, uneven and tense. An incision is made in the centre of the sternum, and extended sub-cutaneously upward and to the right at one side of the original tracheal opening, ending at the incision made in injecting the carotid. An incision through the elevation that has been mentioned, reveals slightly reddened tissue, whiter below, hard in consistency, and from which, when the surface is stroked, a whitish liquid exudes. This nodule is situated below the skin, partially imbedded in the sub-cutaneous tissue, and the underlying muscles are unaffected. A like incision is then made to the left. Here, too, the muscles at both sides appear normal, except above, where they appear very tense. Immediately in front of the larynx, a marked prominence on the left side becomes apparent, in the deeper portions of which a marrow-like infiltration shows itself.

With the opening of the thorax a well-marked ossification is seen on the first rib of the left side. In opening the chest the very pale, gray lungs become visible, nearly filling the pleural sacs, covering the heart. On the left side, a number of small projections are seen, under which hardened spots can be felt, covered with relaxed layers of connective tissue; only in one place, near the anterior margin, a rather clearly circumscribed, lobulated polygonal configuration, with dull, uneven surface is seen. The left lung, on being lifted out, appears externally and posteriorly, above and below, entirely free, contains air in its entirety even to the last portion of the lower lobe directly over the diaphragm. There is very little hyperstasis; those portions at the base containing no air, show dilated bronchi, which are in part surrounded by hemorrhagic deposits. An incision reveals a large number of deposits in the inner portion of the lobe, the most of which present a strong, hemorrhagic, infiltrated boundary, showing a granular surface on incision, while in the centre there appear a large number of small, closely-grouped, yellowish-white nodules. In some places, deposits of the size of a pea show themselves, and are filled with purulent products. In other places, the mass is still firm. In the upper lobe are found a number of the same deposits, scattered, and containing a number of small, yellowish-white places. In the above-mentioned deposits at the anterior margin, in the interior of greatly dilated bronchi, are found thick, discolored plugs, while the surroundings show connective tissue induration. On dividing the bronchi in the lower lobe, they show general dilatation, thickened walls, the mucous membrane in folds corresponding to the long axis, and in these granular, discolored material.

The state of affairs on the right side is very much the same. The apex is entirely free. In the posterior and lower portion, however, the same state of affairs, almost entire absence of air and the same small deposits and dilated bronchi. The pleural cavities contain nothing further.

In removing the larynx the incision is made directly opposite the vertebræ and back, to the œsophagus.

In the mediastinum anticum there is much adipose tissue, glands slightly reddened, otherwise no changes. Larynx and œsophagus are laid bare together, and ligatures applied. On the left side of the neck, in close proximity to the jugular vein, is found a lymphatic gland of about the size of a pigeon's egg, the interior of which has the appearance of marrow, with yellow spots here and there. In opening the œsophagus, and directly behind the cricoid cartilage, a deposit of brown and white membranes which, after being pushed aside, reveal not even a trace of perforation. Epiglottis large, smooth and margin normal. Ligamenta aryepiglottica, especially on the left side, somewhat swollen, œdematous, but not ulcerated. The posterior space between the arytenoid cartilages rather deep, but also not ulcerated. Finally, at the base of the epiglottis, to the left side, a soft nodule of the size of a cherry; next to this a flat one, and further still a number of others smaller and of more recent formation. In addition, and connected with this, a large surface of the length of 9 centimetres, covered with decomposed fragments. The lower boundary of this is formed by the trachea. From there to the thyroid cartilage no cartilage is present, as also no other tissue of the trachea. Of the thyroid cartilage, only the upper sections and the sides, with their cornua, remain.

The distance of the lower end of the tracheal incision to the lower margin of the ulcer is 2¼ centimetres. This low margin has sharp edges, and extends through the mucous membrane at right angles, showing at its lower portion small gray granulations covering a surface of about half a centimetre. We then come to a normal mucous membrane covering the tracheal rings still intact. In the tissues surrounding the portion of the trachea still existing, no cicatrices and generally normal conditions. This ended the examination of the remains, which were then again carefully closed.

The macroscopic changes, which were noted by Waldeyer and Virchow, were then reported as follow:

Cancerous destruction of the larynx, with secondary affection of one of the larger lymphatic glands of the neck on the left side, and below, and a cutaneous nodule on the right side near the wound, œsophagus intact. Gangrenous destruction of the upper portion of the trachea and its environment. Numerous dilated bronchi with putrid contents. In their neighborhood, broncho-pneumonic deposits of a gangrenous nature.

COUNT STOLBERG-WERNIGERODE,
MORELL MACKENZIE,
T. MARK HOVELL,
VON WEGNER,
BARDELEBEN,
LEUTHOLD,
VON BERGMANN,
VIRCHOW,
WALDEYER,
BRAMANN.

CHAPTER XIII.

REPORT OF PROFESSORS VIRCHOW AND WALDEYER REGARDING THE MICROSCOPIC EXAMINATION OF A NUMBER OF SPECIMENS TAKEN FROM THE REMAINS OF THE LATE EMPEROR FREDERICK III.

1. The larger nodule at the insertion of the epiglottis shows externally unchanged mucous membrane with cylindrical epithelium; in the deeper portions, however, alveolar changes with epidermal contents. The cells of the latter are large and well developed; concentrically disposed masses of cells are not discovered.

2. The nodule under the skin on the right side of the tracheal opening is covered with epidermis, thinner than usual, but in other respects unchanged, the cancerous process extending nearly to the surface. Its most marked development is in the deeper portions, where in places well marked nests of concentrically disposed cells are discovered. A number of normal elements, such as sweat glands, are found well preserved between the cancerous masses.

3. The lymphatic gland at the left side of the neck has undergone marked changes. The normal structure has entirely disappeared and has been replaced by loose alveolar tissue, the spaces of which are closely filled with large, epidermal cells, many of which show fimbriated edges.

4. The contents of the bronchi correspond to the description given by Virchow regarding the expectoration of May 19 in reference to the small masses found therein. In addition there are found, at numerous points, abundant collections of small, glistening, fat globules similar to milk globules.

5. In the pulmonary deposits there are thick accumulations of pus corpuscles and cancer cells. The normal alveolar structure still plainly discernible.

Rudolph Virchow,
Wilhelm Waldeyer.

It is not considered necessary to pass judgment. *(Einer Epikrise bedarf es nicht.)*

PART SECOND.

THE REPORT OF

SIR MORELL MACKENZIE.

PREFACE.

It has been a painful task to me to write the following pages, not because there is anything in the charges recently brought against me by some of my German colleagues, which I have the slightest difficulty in meeting, but because I feel most keenly the unseemliness of a controversy which must necessarily cause additional suffering to hearts which have already been tried beyond the common lot. Although the pamphlet issued from the Imperial Press at Berlin embodies accusations which amount to a charge of malpractice, I should have been content, so far as I am personally concerned, to leave my professional reputation to the judgment of impartial men. Under the special circumstances of the case, however, I feel it to be a duty which I owe to those exalted persons who honored me with their fullest confidence through thirteen months of terrible anxiety, to justify the trust which they placed in me. My position, as will easily be understood, was one of the greatest difficulty, owing not only to the overwhelming responsibility of the case itself, but to what I may call its external complications. I know of no instance in history in which a physician, who simply tried to do his duty to his patient to the best of his ability, has had to endure so much calumny and misrepresentation. I say nothing of the abuse and even threats which were liberally showered on me, for to these things I was utterly indifferent, and I can, therefore, claim no credit for despising them. But one must be more—or less—than man to bear deliberate and persistent distortion of his words and acts and motives with equanimity. It is true that the accusations were in many instances absurd, and even self-contradictory, but my assailants evidently acted on the cynical maxim attributed to Voltaire, "Throw mud enough and some of it is sure to stick;" and from the nature of the case there were few, even among professional men, who could form a correct judgment on the facts as presented to them. Two things supported me in what would otherwise have been an intolerable position. First, my own consciousness of perfect integrity of purpose; secondly, the absolute trust and delicate consideration with which from first to last I was trusted by my noble-hearted patient. No physician could wish for a patient more obedient to his injunctions, more full of "sweet reasonableness," than the ruler of the mighty empire of Germany.

As there is a good deal of plain speaking in the following pages, and as the conduct of some of my German colleagues is discussed with a freedom which may seem unprofessional to those who have not read the attack which these gentlemen have made on me, I take this opportunity of saying that I have advanced nothing here with respect to my hostile colleagues which has not been publicly stated already, nor have I made any allegations except in self-defence in reply to charges against myself. I regret extremely that the controversy should have assumed such a tone, but I may remind my readers that I am in no way responsible for it.

In conclusion I may be allowed to refer to some of the difficulties under which I have labored in drawing up this vindication of my professional character. I have been unable for obvious reasons to allude to several points, which, though not bearing on the purely medical aspect of the case, were yet most important factors in determining the course which was pursued. I think I have also some grounds of complaint against the Prussian government, which, whilst allowing my adversaries free access to the State Archives, refused me the same privilege. As I have shown in the body of this little work (p. 246), these "official sources" are of a very miscellaneous character; but among them there are important documents relating to the case of the late Emperor which, in justice to me, should not have been kept from the public. Amongst others may be mentioned the protocols of Prof. von Schrötter, Dr. Krause, and myself, drawn up in November, 1887, and more especially the written refusal of the Emperor (then Crown Prince) to submit to any other external operation than tracheotomy. The protocols which it is proved that Profs. Gerhardt and von Bergmann sent in to the Haus-Ministerium would also furnish interesting reading, and would show what really were the views of these gentlemen before I was summoned to Berlin. The first report of Prof. Virchow would also be highly instructive. I can only hope that these documents and other matters bearing on this historical case will some day be made public. I at least have no reason to fear the full light of day.

M. M.

19 *Harley street, W.*,
October, 1888.

SECTION I.—HISTORICAL.

CHAPTER XIV.

MY FIRST VISIT TO BERLIN AND POTSDAM.

Reception by the Crown Prince.

On the evening of Wednesday, May 18, 1887, as I was about to retire to rest after a day of hard professional work I received a message requesting me to proceed to Berlin to see His Imperial Highness, the Crown Prince of Germany. No hint was given as to the nature of the case, about which I had only heard vague rumors, to which I had paid no particular attention. There was no train that night, but I started the next morning, and reached the German capital on the afternoon of Friday, May 20, being met by Dr. Wegner, Physician-in-Ordinary to His Imperial Highness, and Deputy Medical Director-General in the German army. We drove at once to the Kronprinz Palais, where I found rooms prepared for me. I had scarcely time to change my traveling clothes before the Hof-Marshal, Count Radolinski, came to conduct me to the Crown Prince. His Imperial Highness received me most graciously, apologizing with the charming *bonhomie* which endeared him to all who knew him, for all the trouble which his throat was causing to other people, and in particular for the long and fatiguing journey which it had entailed on me. He spoke in English with scarcely a trace of foreign accent, but his voice, though perfectly intelligible, was little better than a gruff whisper. His Imperial Highness offered to submit himself to examination there and then, but on my venturing to suggest that it would be better that I should first confer with the doctors already in attendance, he at once acceded to my request.

Introduction to my Colleagues.

Thereupon I was taken to another room, where I found the following physicians and surgeons assembled: Profs. Gerhardt, von Bergmann and Tobold, Dr. von Lauer, Physician-in-Ordinary to the aged Emperor, and Medical Director-General in the German army, Dr. Wegner, whom I have already mentioned, and Dr. Schrader, another military surgeon, who occasionally acted as Dr. Wegner's deputy in attending the Imperial family. With Prof. Gerhardt I was already personally acquainted, and he was known to me professionally as a physician who, in the midst of his labors in other departments of medical science, had found time to give some attention to diseases of the throat. Prof. von Bergmann I had heard of in connection with the Servian and Russo-Turkish wars, and I knew that he had been called from St. Petersburg to take the Chair of Surgery at Berlin after it had been declined by Prof. Billroth, of Vienna, and Prof. Volkmann, of Halle, to whom it had previously been offered. I had never, however, seen him mentioned in laryngological literature, save as a somewhat unfortunate operator in a few cases of extirpation of the larynx. Prof. Tobold's name had at one time been familiar to me as that of one of the earliest throat-physicians in Germany; but in the development of the speciality he had dropped almost entirely out of notice, and had grown to be little more than a *nominis umbra* to the present generation of practitioners. I confess that I felt some surprise that among those with whom I was invited to take counsel in a case of such importance there was not at least one of the leading German specialists in throat-diseases. Every laryngologist could, without any difficulty, name several men in Germany whose reputation is not confined to their own country; their absence here seemed to me so significant that I rather hastily concluded that the Crown Prince must be suffering from some obscure disease of which the laryngeal affection was only an accidental complication.

The First Consultation.

After I had been introduced to my colleagues, the consultation began. Dr. Wegner read a report of the case from the beginning up to the time that Prof. Gerhardt was called in. It appeared that the Crown Prince had suffered from what was supposed to be catarrhal inflammation of the larynx, with great hoarseness, in the previous January, and that he had been treated with the ordinary remedies without result. I may here mention that, as I afterward learned, the Crown Prince himself always attributed the origin of his illness to a severe cold which he caught in the autumn of 1886. Whilst in the north of Italy, the Crown Princess and he had taken a drive one evening with the King and Queen of Italy. The coachman lost his way; it became dark and chilly, and the Crown

Prince, who had no great-coat with him, felt as if he had taken cold. He told me that his throat had never been quite well since that evening. When Dr. Wegner had concluded his report, Prof. Gerhardt described the condition of the Prince's throat when he first saw it, and gave a general sketch of the treatment which he had adopted, without entering into details. I merely gathered that there was a small growth on the left vocal cord, which Dr. Gerhardt had tried to distroy with the galvano-cautery, and that the Crown Prince had then been sent to Ems, where he had spent some weeks without deriving any benefit.

My First Examination.

After hearing these statements, I proceeded to examine the case for myself. For this purpose we went into a darkened room, where I made a careful inspection of the Crown Prince's throat with the laryngoscopic mirror. I saw a growth about the size of a split pea at the posterior part of the left vocal cord; it was of a pale pink color, slightly rough on the surface, but not lobulated. The little tumor lay over the *processus vocalis*, but extended also a little way behind and below that point. In deep inspiration, the sharp receding angle formed by the junction of the membranous with the cartilaginous part of the cord was seen to be obliterated, its place being taken by a rounded prominence. On phonation a portion of the growth disappeared from view—a fact which showed that it was partly attached to the under surface as well as the side of the cord; in other words, the neoplasm was partly subglottic in situation. The mucous membrane covering the vocal cord was red in the neighborhood of the growth, but at the front part, for about one-fourth of its length, the cord was perfectly natural in appearance. There was no trace of ulceration on the growth, which, to the naked eye, bore the look of a simple wart or papilloma (as seen in Fig. 1). The affected cord did not move with the same freedom as its fellow on the right side, the play of its fibres being hindered by the excrescence attached to it, which also prevented the two cords from coming together in the way required to produce clear vocal sound. The mucous membrane in other parts of the larynx was slightly congested and relaxed. Except for the loss of his voice, however, the throat gave His Imperial Highness no trouble ; there was no pain, no difficulty of breathing, no hindrance to swallowing. The Crown Prince was in every other respect a model of stalwart health, far stronger to all appearance than the average even of strong men. He came of a healthy stock, and had not impaired his fine constitution by excesses of any kind. He had, however, been subject to occasional attacks of relaxed throat, and he had necessarily led a life of considerable exposure. He had had to use his voice a good deal both in the open air and indoors. This was the case as it presented itself to me.

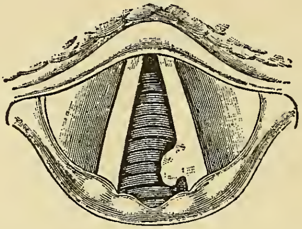

Fig. 1.—Sketch of the growth as first seen. Of course the drawing does not show the lower, or rather under, part of the growth, which was the portion that was specially difficult to seize and take away.

The following explanations may, perhaps, be useful to those unaccustomed to examine the larynx:

In speaking of "right" and "left," it must not be forgotten that a laryngoscopic sketch represents the throat of *a person placed opposite the observer*. In the case of an ordinary familiar view, the relation of the two sides is at once apparent; besides which, certain features at once make it clear which side of the body is on view; but, in looking at a larnygoscopic picture, the two sides being actually identical, confusion arises. It should therefore be borne in mind that the right side of the larynx is opposite the left side of the observer, just as the right hand of a person would be opposite the left hand of a person standing in front of him, and the same remarks, of course, apply to the left side of the larynx. To get a proper idea of the laryngoscopic pictures in this book, *it should be held in front of, and rather above, the reader*, the upper part of the book being inclined forward at an angle of 45°.

The Question of Diagnosis.

When I had made my examination the other doctors and I withdrew in the ordinary way to discuss the matter. Profs. Gerhardt and Tobold gave a positive opinion that the disease was cancerous, and Prof. von Bergmann, though expressing himself more guardedly, substantially agreed with them.* All three were unanimous in thinking that a cutting operation from the outside would be necessary for the removal of the growth; the precise nature of the surgical procedure that would be required was never, however, discussed in my presence. In fact, our consultations never reached the stage at which that question would have come up for consideration. When it came to my turn to speak, I said that "there was nothing characteristic in the appearance of the growth; and that it was quite impossible to give a definite opinion as to its nature, without a more searching examination." I pointed out that the opinion expressed by my colleagues had been come to on what seemed to me to be insufficient grounds, and that they had omitted the most essential, and at the same time, the most obvious, means of arriving at a correct diagnosis The first thing to be done was to pick off a piece of the growth through the natural passage and have it examined microscopically by an expert. Prof. Gerhardt said it would be difficult, if not impossible to do this on account of the awkward situation of the growth; and Prof. Tobold expressed a similar opinion. Whilst freely admitting that the operation in this case presented exceptional difficulties, I said that I thought it could be done, and that at any rate it should be attempted. I then turned to Prof. Gerhardt and said to him, "Will you try?" He replied, "I cannot operate with forceps." I next asked Prof. Tobold if he would make the attempt, but he also declined, saying, "I no longer operate." These replies increased the surprise which I already felt at a case of such a nature having been entrusted to the hands of these gentlemen, for a throat-specialist who cannot use the forceps is like a physician who cannot use the stethoscope, or a carpenter who cannot handle a saw. I then expressed my readiness to attempt the operation, and it was unanimously agreed that, if I succeeded, the fragment removed should be sent to Prof. Virchow, who is universally admitted to be the greatest living authority on all matters pertaining to morbid anatomy. Although anxious to keep clear of controversial topics in this place, I must here interrupt my narrative for a moment to call attention to the eminently disingenuous manner in which this subject is dealt with by Prof. Gerhardt. He makes no allusion to the conversation given above, but contents himself with saying, "Mackenzie was *entrusted* (!) with the removal of portions of the tumor."* as if my colleagues had graciously waived their rights in my favor, or as if I were the handy craftsman to carry out the behests of my scientific superiors. The insinuation thus subtly conveyed has absolutely no foundation in fact. My colleagues had not taken the very first step toward establishing their diagnosis on a scientific basis, nor apparently had they even thought of so doing.† The proposal came from me, and it was only after they had acknowledged their inability to carry it out, that I undertook to make the attempt. I must be excused for dwelling a little on this point, for it was from this circumstance that the jealousy of my German colleagues, which subsequently led to so much unpleasantness, first took origin.

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* I was afterward informed by Dr Wegner that until I arrived Prof. von Bergmann had declined to take any responsibility with regard to the diagnosis. He had always said, "Gerhardt makes the diagnosis, I am only the operator."

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* *Die Krankheit Kaiser Friedrich des Dritten*, p. 9.

† It was only on reading the German pamphlet that I learned that Dr. Gerhardt had, as a matter of fact, made several ineffectual attempts to remove a portion of the growth with snares and sharp spoons. This is admitted in the document in question (p. 2), but Prof. Gerhardt carefully refrained from mentioning it to me at the time.

My First Operation.

Having, as I have already said, no knowledge of the nature of the case before I arrived in Berlin, I had left home unprovided with any instruments beyond those required for a simple laryngoscopic examination. After the consultation, therefore, I visited the shop of the principal surgical instrument maker in Berlin; but, although he had sold many of my own laryngeal forceps, he did not happen to have any in stock. This was a great disappointment to me, for every surgeon knows what a difference there is between operating with an instrument familiar to his hand and one to which he is unaccustomed. I found a forceps, however, of a French pattern with which I determined to make the attempt. Meanwhile the Prince and Princess had returned to Potsdam, and I was left alone in the Kronprinz Palais with leisure to think over the whole situation, and in particular of the operation which I was to perform the next morning. It was trifling enough in itself, and I had done it with success on several hundred patients, but never in a case so fraught with momentous issues. I had an instrument the blades of which were only half the size of mine; besides, only the front blade moved, whereas I was accustomed to a forceps in which both blades opened. If I failed—and failure was not unlikely—my colleagues, whose jealousy was already alarmed, would be sure to make the most of it, and, what was far worse, the illustrious patient would be subjected to a grave operation, which was possibly unnecessary. If, on the other hand, I succeeded, what would Prof. Virchow's report be as to the nature of the growth removed?

It must be borne in mind that the extraction of a growth from the larynx with forceps is an altogether different matter from attempting to burn it away with the cautery. In the former case the operator either succeeds or he fails, and his success or failure is at once evident not only to the bystanders but to the patient. The manipulation is one which requires no ordinary degree of skill, and the operator's movements are guided, not by direct vision, but by an image of the parts he is attacking reflected on a little mirror which he has to hold in the throat with one hand whilst he wields the forceps with the other. With the cautery a great moral impression may be produced without any corresponding physical execution, or the burning may be effected in the wrong place without the patient being aware of the fact. I was, therefore, about to attempt an operation of extreme delicacy under circumstances calculated to tax my nerve to the utmost; and there would be no possibility of concealing or explaining away a failure.

Early on the following morning (May 21) all the doctors assembled again in the palace. As the room in which the operation was to take place was rather small, Dr. Wegner suggested that, besides himself, only the two physicians (Gerhardt and Tobold) who could use the laryngoscope, should be present. Cocaine was then applied to the Crown Prince and everything was got ready. Whilst we were waiting till the local anæsthetic had produced its effect, some one knocked at the door. Dr. Wegner left the room and almost immediately returned, bringing Prof. von Bergmann with him. He observed that he was not previously aware that the professor was a laryngoscopist, but as he now claimed to be so he was admitted into the somewhat crowded room. When the cocaine had taken effect, I introduced the forceps into the larynx, but failed to seize the growth. As a rule I do not introduce the forceps more than once at the same sitting, but in this instance, as I was working at some disadvantage with an unfamiliar instrument, I determined to try again. I did so, and this time was more successful. On withdrawing the forceps and opening the blades (which are hollow on the inside like spoons), there was a fragment of growth in one of them, which I showed to those looking on. I saw a look of amazement, quickly followed by one of annoyance and disappointment, come over the faces of Profs. Gerhardt and Tobold; Dr. Wegner, on the other hand, seemed delighted, and warmly congratulated me. After the operation, Prof. Gerhardt made a laryngoscopic examination, and said he could see that the fragment which I had removed had been taken from the posterior and under part of the growth.* It was at once placed in spirit by Dr. Wegner, and given by him into the hands of Prof. Virchow. The appearance of the growth after my operation is shown in Fig. 2.

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* In his recent report Prof. Gerhardt gives a different account of the matter. He says (*Op. cit.*, p. 9), "I saw a small loss of substance in the mucous membrane on the upper surface of the left vocal cord near the external border of the tumor." Although Dr. Gerhardt has for some reason modified his opinion as to the exact spot from which the fragment was taken, there can be no doubt that wherever it came from it was diseased, not healthy, tissue. This was acknowledged by Gerhardt at the time.

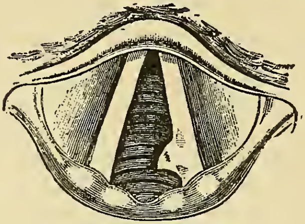

Fig. 2.—Sketch of growth after first operation. Sketch made May 22. (See Explanations, Fig. 1, p. 104.)

At Potsdam with my Imperial Host.

After the operation the Prince returned to Potsdam, where he graciously invited me to stay with him, adding, "You can go into Berlin every day for some hours if you find it dull." In the afternoon I went to Potsdam, where I had the honor of driving out with their Imperial Highnesses and the three Princesses in a wagonette. On the following day I accompanied the Imperial family to Bornstadt, where I was shown the model farm which supplied them with milk, butter and eggs. Whilst staying at the Neue Palais (now Friedrichskron) I visited the picturesque church and churchyard, both of which gave ample evidence, by their condition, of the interest taken in them by their Imperial Highnesses. I was particularly charmed with the *crèche*, or children's nursery, established in the village by the Crown Princess; the children, between twenty and thirty in number and ranging from a few months to five or six years in age, looked healthy and happy, and the whole appearance of the place and its inmates bore eloquent testimony to the fostering care of the Princess.

The Prince and Dr. Gerhardt.

The Princesses drove home, but I had the privilege of walking back to Potsdam with the Crown Prince, who took the opportunity to speak to me very seriously as to his condition. He told me that a friend (he did not mention whether it was a lady or a gentleman) met him at Ems and said to him, "I was going to call on you, for I am grieved to hear that Gerhardt says you have cancer." His Imperial Highness asked me if I did not think Prof. Gerhardt had done wrong in sending him to Ems if he believed him to be suffering from cancer I replied that I had assuredly never heard of the Ems waters doing good in a case of cancer, but I ventured to suggest that possibly the physician had been misrepresented. The Prince then asked me if it was usual for medical men to mention that a patient was suffering from cancer to outsiders, or, as he expressed it, to "other people," "when the patient's own wife" was not told of it. I again took the liberty of pointing out that Prof. Gerhardt might be able to give a satisfactory explanation of the matter if it were brought under his notice. His Imperial Highness seemed extremely dissatisfied with Gerhardt, not only for his indiscretion in talking about the case, but for having sent him to Ems though believing him to be suffering from malignant disease. He then changed the subject, and among other things we talked of the scenery. I expressed great admiration of the landscape at Wildpark, which, I said, reminded me of an English park. The Crown Prince thereupon said that next to Germany he preferred England, and especially Scotland for scenery. He spoke with the keenest delight of the beauties of nature, for which he evidently had a most appreciative eye. More than once, however, during our walk, the Crown Prince reverted to the Ems incident, and though naturally reserved about himself, he could not help showing that Prof. Gerhardt's indiscretion, even more than his want of medical judgment, rankled in his mind. In the course of our conversation, I asked the Prince if it was true as commonly reported that he had been a great smoker. He told me that like many other reports it was quite untrue, and that for many years he had hardly smoked at all. He said that when campaigning he had sometimes solaced himself on a fatiguing march, or after a hard-fought battle, with a pipe, and he had been seen doing this by a great number of his troops, who probably afterward talked about it. In this way the Prince said he supposed that his perfectly undeserved reputation as a devotee of tobacco had become established.

The Crown Prince, though hardly ever out of uniform in Berlin, was often in plain clothes whilst staying at his palace at Wildpark. I was greatly struck by the genial courtesy of his bearing to the peasants whom he met; instead of a perfunctory nod or a careless wave of the hand, he returned their salute by taking off his hat, as an ordinary Englishman does in saluting a lady. It was easy to see that the stately Kronprinz was "Unser Fritz" in the hearts of the lowliest among his future subjects.

What I had Prevented.

In the course of a walk, in which the Crown Princess was good enough to invite me to accompany her, she informed me that before my arrival it had been determined to perform an external operation on the Crown Prince. This was fixed to take place at 7 A. M. on Saturday, May 21. An operating-table had been brought from the Charité hospital, and two nurses were already in the palace. Her

Imperial Highness said that it had been Bergmann's intention to open the larynx in the middle line in front,* so as to see the extent and connections of the growth with a view to its complete removal if feasible. In fact, as her Imperial Highness observed, "it was to be an exploratory operation; but when once begun, it was quite uncertain where it would end." These statements are confirmed by Prof. von Bergmann himself,† who affirms, moreover, that he had all the risks of the proposed operation and its probable results clearly laid before the Prince. From what he says, however,‡ it is easy to gather that he gave the Prince a highly optimistic view of his prospects, especially in the matter of voice. I have the best reason for believing that it was not till several months later, when the Crown Prince was at Braemar, that he learned quite accidentally from one of his gentlemen-in-waiting the formidable nature of the operation which had been almost forced on him in May.

It has often been privately insinuated, if not openly stated, that the illustrious patient was never informed as to the true nature of his disease — that, in fact, he was buoyed up with false hopes. The truth, however, is that Gerhardt's gossip about the case brought a knowledge of its serious nature to the Prince's cognizance at a very early period. Although, for the sake of his family, he manfully assumed a cheerful demeanor, the horrible idea that he was the subject of cancer must have frequently occurred to him.

Virchow's First Report.

Prof. Virchow s report was of course awaited with the keenest anxiety, for on it depended the course to be pursued. Two days after the removal of the fragment, Dr. Wegner informed me that the great pathologist had failed to find any evidence of malignancy, but would like to have a further piece for examination. Dr. Wegner afterward told me, however, that Prof. Virchow was perfectly satisfied with the result of his examination, and did not require any more of the growth. Subsequently a report was received from Prof. Virchow in which he pronounced the portion of growth which had been submitted to him to be of benign nature. He stated that the epithelial cells were increased in number and size, and added, that as the section had penetrated through the whole thickness of the growth down to the tissue of the vocal cord (as shown by the presence of longitudinal elastic fibres), there was no reason to suppose that the remainder of the growth was different in structure from the portion which he examined. This report is unfortunately not published in the German pamphlet, though it is deposited among the "official sources" on which that document professes to be based. I may here mention that I applied to the Haus-Ministerium, through Count Radolinski, in December, 1887, for copies of the various documents relating to the Crown Prince's illness which had been deposited in the State Archives, but my request was positively refused — for what reason I am at a loss toconjecture. According to Prof. Gerhardt, however, who has had access to all the papers, Virchow's examination showed only an "irritative process; but there was an isolated nest of concentric epithelial cells (a cell-nest in fact) in the midst of proliferating epithelium."* Virchow declared verbally at the time that the affection might be a *pachydermia laryngis*†— a thickened, warty condition of the larynx resulting from chronic inflammation. This report conclusively proves that whatever the affection from which the Crown Prince was suffering might be, the tissue which I removed was not healthy tissue (as has been suggested), but one presenting a warty character. It is simply inconceivable that the first pathologist in the world should mistake healthy for diseased tissue, and it is incredible that such a man should, under any circumstances whatever, have lent himself to any wilful deception.

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* An operation called by the Germans *Laryngofissur*, and in this country, generally, *thyrotomy*.
† *Op cit.*
‡ *Ibid.*

My Second Operation.

On May 22 I found the left ary-epiglottic fold and the left vocal cord, together with the whole of the *right* one, a good deal congested. The voice was slightly hoarse. During the day it became clear, but toward night it was husky. In the evening I observed that though the anterior half of the right vocal cord had become almost normal in color, the middle third was bright red; there was also still some slight congestion of the left ary-epiglottic fold. The congestion appeared to me to be of a catarrhal nature, and as the Crown Prince at that time did not take much care of himself, it was supposed that he had caught cold. I should mention that this tendency to the sudden development of localized congestion in the larynx was subsequently noticed by Dr. Wolfenden, Mr. Mark Hovell, and Prof. Krause, as well as myself, as a peculiar feature‡ in the Crown Prince's case. On May 23, in the presence of Prof. Gerhardt and Dr. Wegner, I made a second attempt to remove a piece of the growth from the larynx. Before introducing the forceps. I examined the throat, and found the larynx in much the same state as on the previous evening.

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* *Op cit.*, p. 9.

† *Ibid.*

‡ There is every reason to believe that this abnormal irritability was due to the extraordinary mode in which Gerhardt had burnt the larynx. (See page 123.)

This time I did not succeed in bringing anything away with the forceps. I did not pass the instrument far enough down, and the blades closed before they were in contact with the growth. In this kind of work the operator knows when he has seized what he is aiming at, just as an angler feels when he has a "bite." There was no resistance, and I was sure before I withdrew the forceps that the blades would come up empty. In view, however, of the congestion to which I have alluded, I thought it well not to run the risk of irritating the larynx by any further manipulation on that day.

Gerhardt's False Accusation.

An occasional failure of this kind, as every laryngologist of any experience knows, is so common that I attached no importance whatever to the incident, and should certainly not have thought it worth mentioning had it not been for some remarkable events which followed. When I had laid aside the forceps, saying I would not again use them at that sitting, Prof. Gerhardt asked to be allowed to examine the larynx. He had scarcely put the mirror in position when he withdrew it with a highly artistic expression of horror and alarm. He asked me to look, which I did, but without seeing anything more than the congestion of which I have spoken, which was perhaps rather more marked on the right vocal cord. Gerhardt then asked Wegner to look, but that gentleman did not see anything in particular.* We then retired to my room, when Dr. Gerhardt said that I had wounded the right vocal cord. He was considerate enough to add that if symptoms of suffocation should follow this injury, there was a clever surgeon in Potsdam who would be able to perform tracheotomy. I assured the professor that his fears were quite groundless, and showed him that with my † forceps it would be difficult, if not impossible, to wound a healthy cord, even if one tried to do so.‡ The blades would cut away anything *projecting from* the cord, but not a smooth surface like that of a healthy vocal cord. My forceps act very much like the shears used for clipping hedges, supposing them to be blunt-pointed. With such an instrument a man standing sideways at a wall might cut off twigs or weeds projecting from it, but it would be impossible for him to shear off anything that did not stick out from the flat surface. As a matter of fact, so incapable is my instrument of seizing anything that does not project, that in the case of very small growths I do not attempt their removal. I never try to remove a growth smaller than a split tare from the vocal cord because my instrument does not act unless there is a certain amount of projection to come between the blades. Had Prof. Gerhardt said I had wounded the epiglottis, or one of the *capitula Santorini*, which present projections and edges, so placed that they could be seized, the accusation would have been less improbable — that is to say, an exceptionally clumsy person *might* accomplish the injury attributed to me. A wound of such severity as that described by Prof. Gerhardt could hardly have been inflicted without the patient's suffering some inconvenience from it afterward. After the effect of the cocaine had passed off there would have been smarting at the seat of injury, a very uncomfortable feeling in the throat generally, great irritation in the larynx, leading to coughing, and perhaps even a tendency to spasm of the glottis. Not one of these symptoms was present. Above all, there would have been the objective symptoms of blood being coughed up.

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* This, though I might claim it as testimony in my favor, I do not attach much importance to, as Dr. Wegner was seldom able to obtain a good view of the interior of the larynx.

† I had by this time had my own instrument brought over to me.

‡ Prof. Gerhardt states, *op. cit.*, p. 9, that on his mentioning the matter to me, I expressed myself in the following remarkable terms, "*It can be*" I do not pretend to know what these words may mean, but English readers will have no difficulty in believing that I never could have used them. The matter is trivial in itself, but affords a useful gauge of my accuser's accuracy in more serious things.

The professor tells us of a large clot of blood sticking out of the wound into the glottis. How was it that none of the fresh blood had been expectorated? Perhaps it is as well to remind my readers that I was now operating with my own forceps, and that *I did not, because I actually could not*, wound the right vocal cord. Although, according to Prof. Gerhardt, Dr. Landgraf reported that this supposed wound did not heal until June 29, the young Stabsarzt was no doubt on the alert for the phantom lesion about which his chief had given him useful hints (*Informationen*).* The description of the healing of the imaginary wound gives a touch of local color, no doubt highly gratifying to the professor. Dr. Wolfenden reported on June 15 that "the right vocal cord is healthy." Dr. Wolfenden's testimony is all the more valuable, because I had given him no "hints." Indeed, so little thought had I given to this childish complaint of Gerhardt's, that after mentioning it to one or two friends on returning from Potsdam, I had never thought of it again. I had never for a moment dreamt of its being made a serious charge derived from "official sources!" I have operated many thousands † of times, and many of the leading laryngoscopists of this country and of America have at one time or another seen me operate. Not one of them, I am sure, can say he has ever witnessed any accident of the kind befall me. More than this. When I gave more time to teaching than I can do now, I used to allow my pupils to operate with my forceps when they had worked with me for a year. Though I have, of course, often seen them fail to get anything away, I have never once heard of any injury being inflicted, even by the rawest hand. I pointed out, moreover, to Prof. Gerhardt that if by some quite exceptional stroke of ill-luck such an out-of-the-way accident had occurred, it was really not a matter of the slightest consequence, as it was well known that wounds of the vocal cords healed in a few days. This is seen after the removal of growths, when in order to extirpate the new formation thoroughly, it is often necessary to cut into the healthy substance below it. No ill effect of any kind is ever known to follow.

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* These "hints" *ceased*, it seems, as soon as Landgraf was appointed my "controller," but as they had already been given, there was no occasion for their continuance (see foot-note, p. 135)

† I have notes of over 400 cases, and on an average these would be operated on, successfully or otherwise, at least 10 times each, so that, at the lowest computation, I must have introduced the forceps 4,000 times.

There can be no difficulty in understanding Prof. Gerhardt's motive in the affair. My success on the first occasion had mortified him, and he was glad of an opportunity to find fault. Operations on small sessile growths, such as I had to deal with in the present case, are often unsuccessful, and I should not have been surprised if I had had to make a dozen attempts before succeeding. As a matter of fact my operations on the Crown Prince were quite exceptionally successful, for in four attempts there was only one failure. This proportion of successes is quite outside the ordinary experience of the deftest operators, and I cannot help feeling that good luck played as important a part as skill on these occasions. But whether I had failed or succeeded, it was hardly professional on the part of a colleague to endeavor to damage me in the eyes of my patient by a carefully prepared *coup de théatre* such as I have described. Even if I had inflicted the injury imputed to me, I say the conduct of Prof. Gerhardt on that occasion would have been unfair both to the patient and to me. Half an hour after Dr. Gerhardt had left, the Crown Prince sent for me, and said, "Did any accident occur during your operation, as Prof. Gerhardt looked so very much alarmed?" The Prince added, "My throat feels quite comfortable." I replied that I thought Prof. Gerhardt was under some misapprehension, and that in any case the matter was of no consequence. His Imperial Highness said nothing more, and I clearly saw that the plot had failed so far as the patient was concerned.

Gerhardt keeps up the Farce.

Two days later we had another general consultation at Berlin, and here again Prof. Gerhardt's dramatic talent displayed itself. Lowering his voice to a tragic whisper, he asked me whether he might be permitted to communicate "a certain event" to the assembled doctors, adding significantly, "We are among colleagues, and with closed doors." Guessing that his mysterious allusion had reference to my supposed accident, I begged him to be under no restraint, and he then proceeded to explain, in an artless, pitying sort of way, that I had injured the right cord. Prof. von Bergmann was then invited to use the laryngeal mirror, and Prof. Tobold followed. They both said that they believed the right vocal cord was injured. As Prof. von Bergmann had not posed as a laryngoscopist until I arrived in Berlin, and as Tobold showed an obsequious willingness to re-echo every remark made by Gerhardt, I did not attach any importance to their statements. I now made a very careful examination in order to be quite sure as to how the case stood, but could see absolutely nothing beyond the congestion previously described. Prof. Gerhardt looked again, and said he could see a vegetation already sprouting from the wounded spot, adding, with an amiable intention for which I was duly grateful, "It will be interesting to observe whether the new growth (!) will prove to be malignant." I ventured to point out that the development of cancer in a wound supposed to have been made only two days before would indeed be an event of the greatest interest, as such an occurrence would revolutionize everything that was thought to be known in pathology. Dr. Wegner hereupon interfered with the remark that the discussion was assuming an academic character, and suggesting that we should turn our attention to matters of more practical importance. Before leaving the subject I may remark that, if there had really been any injury, Bergmann and Gerhardt would certainly have insisted on another laryngoscopist being called to bear witness to the mischief; but they, no doubt, had reasons for not taking this course. I was asked what mode of treatment I proposed to adopt in case I should be unable to remove the growth with forceps. I replied that I should then endeavor to destroy the growth by applying electric cautery from time to time. On the 25th another consultation was held, and it was decided that I should endeavor to remove the growth through the mouth, every portion of tissue thus taken away being immediately sent to Prof. Virchow. It had previously been agreed that in the meantime an astringent and sedative powder should be applied by Dr. Wegner, in order to get rid of the congestion and relaxation of the larynx. These conditions, however, proving rather obstinate, I did not consider it advisable to make any further attempt at that time. I accordingly started for England on May 29.

Statement of my Position.

Before concluding this chapter, I think it well to define, with the utmost possible clearness, the exact position which I took up with reference to this most difficult case. This is the more necessary, inasmuch as my attitude has been misunderstood and misrepresented to an extent almost without precedent in medical practice. I repeat that I gave no opinion one way or the other as to the nature of the disease. I did not say that it was not cancer; I only said that that opinion was "not proven;" and in the absence of positive proof I refused to sanction surgical procedures which at present are at the best more or less of the nature of experiments, which are always dangerous to life, nearly always destructive to the voice, and which, even when "successful," too often leave the patient unfit for the business of life, or even sometimes in a condition worse than death itself. Till the nature of the case should be clearly proved, it seemed to me to be my duty, not merely as a physician, but as a man, to oppose the application of a remedy which the patient might justly think worse than the disease.

CHAPTER XV.

MY SECOND VISIT TO POTSDAM.

My Third Operation.

On June 7, I again arrived at Potsdam, in obedience to a summons from the Crown Prince. On the following morning I examined his throat in the presence of Dr. Wegner, when I found that the congestion formerly present had entirely disappeared. I had not proposed to operate till arrangements could be made for some of my colleagues to be present, but finding the occasion particularly favorable, I did not care to let it slip. I accordingly had my forceps brought to me from my room at the top of the palace, and after applying cocaine, succeeded in getting away more than half of the growth. The tissue removed was at once conveyed by Dr. Wegner to Prof. Virchow, and after waiting a day or two for his report, a grand consultation was held, in which all the gentlemen who were present on the previous occasions took part. The following report was read:

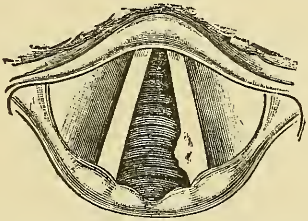

Fig. 3.—Sketch of growth after the third operation. (For explanation, see Fig. 1, p. 104.)

Prof. Virchow's Report on the Portion of Growth Removed from the Larynx of H. I. H. the Crown Prince of Germany, on June 8, by Dr. Morell Mackenzie.

"The two specimens delivered yesterday by Director-General Dr. Wegner, exhibit, on microscopic examination, the appearance of a coarsely granular papillated tumor. Their convex surface had a granular, bluish-white, slightly transparent glistening aspect, in so far as they retained their natural conditions; large portions, indeed, which had been acted upon by catechu showed a dull, brownish, somewhat crumbling character. The cut surfaces were somewhat retracted, and concealed by the turning up of the margins: they consisted of a soft, slightly fibrillated tissue, from which projected some shreds of various lengths. The larger of the two portions was 3 millimetres in height and had a diameter of 2.5 millimetres; the smaller was about 2 millimetres in diameter. However, these measurements could not have quite corresponded to the conditions during life, for by the retraction and infolding of the cut surfaces after extirpation, they must have undergone a diminution. Microscopical examination confirmed the diagnosis made by the naked eye inspection:—1. The surface everywhere consisted of a very firm and thick layer of stratified squamous epithelium. Large colloid granules appeared in many of the cells. Here and there lay a nest of concentrically laminated cells. Internally there occurred a similar stratified layer of cylindrical cells (without cilia), which were seated directly on the connective tissue. 2. The connective tissue layer of the mucous membrane was furnished on its surface with long papillary outgrowths, which contained large vascular loops besides the connective tissue elements. Each such papilla corresponded to a granulation on the surface. Otherwise the mucous membrane showed scarcely any changes; even proliferation of nuclei and cells was only sparsely detected. The blood-vessels were moderately dilated. Both sections have been made deeply into the mucous membrane and through this into the submucosa. Hence there are found, besides connective tissue with numerous fine elastic fibres, a large number of small nerve trunks (from four to six fibres) and their branches, as well as small arteries and veins; in some places are seen also collections of lobules of the mucous glands. Although *it is thereby proved that the operation had reached the deep parts** underlying the mucous membrane, yet in spite of the most careful examination of these deeper parts, especially at the cut surfaces, no single portion could be found altered in an appreciable degree. All such changes were confined to the surface. They characterize the lesion as an epithelial growth, combined with papillary offshoots (misnamed papilloma), *pachydermia verrucosa. In no part could an ingrowth of this epithelial formation into the mucous membrane be detected.**

The foregoing statement is an important advance upon the statement of the 21st of May. In the specimen then examined changes resembling those now present were only very scanty in comparison with irritative changes; but all such appearances were limited to the periphery of the lesion. Now, on the other hand, *a more central portion of the growth has apparently been obtained.* Although this portion *is very much diseased,** yet the healthy condition of the tissue on the cut surface allows *a very favorable opinion to be formed as to prognosis.** Whether such an opinion would be justified in respect to the whole disease cannot be ascertained with certainty from the two portions removed. However, there is *nothing present in them which would be likely to excite the suspicion of wider and graver disease.*"†

Prof. Dr. RUD. VIRCHOW.

"*Berlin Pathological Institute,*
June 9th, 1887."

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* None of the italics are in the original.

† Before leaving Berlin. I suggested to their Imperial Highnesses that in order to allay the great anxiety naturally felt by the public it would be desirable to allow Prof Virchow's report to be published. The Crown Prince accordingly gave orders that it should be communicated to the Berlin medical journals. The translation given above is that which was published in the *Lancet* of June 25, 1887 (p. 1302), of the German text which appeared in the *Berliner klinische Wochenschrift.*

It must be borne in mind that Virchow, knowing that his report would come under the eyes of the patient, was naturally anxious to make it as favorable as he could consistently with the truth. It will be observed, moreover, that he was careful to limit his remarks to the portions of tissue actually examined by him. Nevertheless, when discounted to the fullest extent, the report could not fail to be highly encouraging. The fragment had been taken more from the centre of the growth than the one first removed, and the section had been made quite through the diseased structure into the healthy parts beneath it; it might therefore fairly be accepted as a representative specimen of the whole. The essential anatomical feature of cancer, viz., the penetration of the epithelium into the underlying structures, was conspicuous by its absence. Cancer has been not inaptly defined as an *ingrowing* wart. However thickened or otherwise diseased the superficial covering may be — however much it may grow *outward* — so long as it does not force its way into the deeper parts, there is no cancer. It is true that the evidence here was merely negative, and did not positively *disprove* the existence of malignancy, but it made it very improbable. As if to emphasize this, Prof. Virchow went a little beyond his strict province (which was simply to record what he saw), and said that there was nothing in the portion of growth which had been submitted to him that gave grounds for suspicion as to the nature of the remaining part.

The Case is handed over to Me.

After the reading of Virchow's report, a consultation took place among us, the result of which was that, with the unanimous consent of those present, the case was handed over to me for treatment in the manner I had proposed. My plan, as I have already stated, was to attempt to extirpate or destroy the growth by what is known as the *endolaryngeal* method; that is to say, by instruments passed into the larynx through the mouth. If after a fair trial this line of treatment was not found to answer, it would have to be considered whether an external operation should be performed, and if so what kind of operation should be done. On May 25 it had been agreed that all portions of growth removed should be submitted to Prof. Virchow, and that, in the event of my treatment not proving successful, further deliberations should take place with the view of considering subsequent procedures. The exact agreement arrived at in the consultations of May 25, and confirmed on June 10, between the German doctors and myself, has been absurdly misrepresented. All that I "agreed to"— I may even go further and say "advocated"— was first, that all portions of growth which I might remove should be sent to Prof. Virchow for his report, and secondly, that in the event of my failing, other measures should be concerted. It was subsequently pretended, though this has not been embodied in the German pamphlet, that I had promised to send reports to my colleagues from time to time, and von Bergmann goes so far as to say [*] that I agreed, if the tumor increased in size, to allow thyrotomy (*Laryngofissur*) to be performed. As the exact nature of any proposed future operation was never discussed, it will be seen that there cannot be any grounds for von Bergmann's contention. That there is great confusion in the minds of my German colleagues, as to the arrangements made between us, is shown by the fact that Gerhardt states that the conditions under which I was to take charge of the case were agreed to on June 1,[†] at a consultation held at the residence of Dr. Wegner, at a time when I was not present in Berlin. The conditions agreed to were rigidly adhered to by me. The final portion of growth which I removed was submitted to Virchow, and when, in November, my treatment proved unavailing, I invited two eminent laryngoscopists to meet me in consultation to decide what further steps should be taken.

Under the circumstances no other decision could possibly have been come to than that which was come to on May 25. In the face of such a report as had been received from the man whose supreme authority on such matters is recognized by the whole medical world, no doctor would have thought for a moment of submitting to a serious operation if the case had been his own. I can certainly answer for myself that, if I had been the patient, I should have serious doubts as to the sanity of a surgeon who proposed such a thing.

My Colleagues share my Responsibility.

From what has been stated it will be seen that it is quite untrue that I took the case out of the hands of the German doctors. They had called me in, and I had given my opinion, to which, outwardly at least, they had subscribed. They distinctly sanctioned the course of treatment which I had laid before them, and, if I may so express it, I received a mandate from them to carry it out. Had the case turned out well these gentlemen would no doubt have been ready enough to claim their share of the triumph on the ground that they had "entrusted" me with the operation. It is absurd, therefore, to thrust on me the whole responsibility for a decision to which they were all consenting parties, simply because the event belied the hopes that were not unreasonably entertained. If, in spite of Prof. Virchow's report, Bergmann and Gerhardt were convinced at that period that the disease was cancer, and at the same time had no confidence in me, either as an observer or an operator, *the only honorable course toward the patient for these practitioners to have pursued* was to have openly withdrawn from me, and to have issued a separate report. Instead of this they endorsed the resolution which was come to with regard to the conduct of the case, *in foro externo* at least, and thereby contracted a solidarity of responsibility with me. The only possible explanation of their conduct, supposing them to be honorable men, is that they did not feel at all sure about the diagnosis. Further on (p. 242) it will be shown that at the end of September or beginning of October, von Bergmann actually admitted that I had been right in the course I had recommended in the early summer. In showing that the German doctors are equally answerable with me, I am not trying to remove any part of the responsibility from my own shoulders; I only wish to show the shifty character of the men with whom I had to deal.

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[*] *Op. cit.*, p. 27.

[†] *Ibid.*, p. 14.

The Crown Prince resolves to come to England.

Another point on which there has been much misrepresentation is the choice of London as the place where the treatment should be carried out. When it was settled that I should try to get rid of the disease by operating through the natural passages, I was asked if I could stay at Potsdam for the purpose, and I pointed out that there were many objections to this. The Crown Prince was extremely anxious to be present at the Queen's Jubilee, and I need hardly say that it was more convenient for me to treat him in London, where I had all the necessary appliances ready to my hand, than in the somewhat haphazard way I had been doing in the palace. His Imperial Highness's visit to England had been arranged several months before, and, therefore, the suggestion that the treatment should be carried out in London, harmonized with his own plans. I agreed, however, to go to Potsdam if circumstances should (as was not improbable) arise which would make it difficult for him to leave Germany.

More Gerhardtian Amenities.

I have already mentioned my experience of Prof. Gerhardt as a "candid friend;" I had now to learn his powers as an unscrupulous foe. Before I left Potsdam, the Crown Princess told me that Prof. Gerhardt had said to her, that even if I did succeed in cutting away the growth with forceps, the healing or cicatrization of the wound would so interfere with the working of the vocal cord that, as far as the voice was concerned, the last state of the illustrious patient would be worse than the first. The professor also gave her to understand that the right vocal cord was in a festering condition, owing to the injury I had caused! I assured the Princess that these alarming statements were absolutely unfounded. With regard to the cicatrix, I said I had cured hundreds of cases without any such ill consequence as Prof. Gerhardt professed to fear in the present instance. As for the alleged "suppuration" of the right cord, I was obliged to confess that I had no idea what was meant. After this illustration of Prof. Gerhardt's peculiar notions of professional ethics, I was compelled to inform the Crown Princess that I must in future, decline to meet him again in consultation, though I had no wish to interfere with his examining the Crown Prince's throat as often as His Imperial Highness might desire.

Gerhardt appoints a "Controller."

What finally opened my eyes to the kind of treatment I had to look for from my German colleagues was the underhand way in which, on pretence of providing the Crown Prince with surgical help in case of emergency, I was to be watched, or, as Gerhardt now says, "controlled."* The professor had hoped to accompany His Imperial Highness to England; but as there seemed to be no necessity for this under the circumstances, it was arranged that Dr. Wegner should look after the illustrious patient's general health whilst I conducted the special treatment. Had it been openly intimated to me that it would be more satisfactory to the German Court, if the Crown Prince were also accompanied by a competent German laryngoscopist to report from time to time on the progress of the case, I should not have raised any objection. Instead of this, I was informed by Dr. Wegner, that by desire of the Emperor William, a young army surgeon (*Stabsarzt*) would go to England as *his* (Dr. Wegner's) assistant. His words were: "My eyes are not so good as they were, and it would be convenient to have a young surgeon with me in case tracheotomy should become necessary." It was only by accident that I discovered that Dr. Landgraf — the Stabsarzt in question — was one of Prof. Gerhardt's assistants. This fact I learned from a well-known throat-specialist in Berlin, on whom I happened to call before leaving Berlin. This gentleman, moreover, told me that Dr. Landgraf was anything but a skilful laryngoscopist, and had, only a few weeks before, been unable to distinguish the true from the false vocal cords. I afterward had ample opportunities of seeing for myself how thoroughly the young Stabsarzt deserved his reputation in this particular. I shall deal with Dr. Landgraf's so-called "observations" further on.

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* *Op. cit.*, p. 14.

The Artificial Production of Cancer.

I must here make a few remarks on a subject which I should have been glad to avoid, viz., the influence of Prof. Gerhardt's treatment on the nature of the malady from which the illustrious patient suffered. The fact, however, that Prof. Gerhardt has himself raised the question in his recent publication as to how far his own treatment was responsible for the unfavorable course of the illness, makes it impossible for me to pass over this subject.

Before returning to England I learned, on unimpeachable authority, certain facts as to Prof. Gerhardt's previous treatment of the case, which made me feel more anxious about the future than I had up till then seen any reason to be. I have already said that the professor himself had touched on the matter very lightly in my presence, and when he mentioned in general terms that he had used the galvano-cautery, I naturally understood him to mean that he had employed this powerful agent according to the recognized rules of surgical practice. When, therefore, I was informed that he had applied the red-hot point to the interior of the larynx *every day* for nearly a fortnight I could hardly bring myself to believe it. In all my experience I had never heard of any one applying the cautery to a patient's larynx oftener than once, or at most twice a week, and I hardly know which to be the most astonished at in the present instance, the therapeutic energy of the physician or the endurance of the patient. Lest any of my readers should suppose that I had been misinformed, or at any rate that the statement just made was exaggerated, I may say that it is now confirmed by Prof. Gerhardt himself in his recent deliverance.*

Now no special knowledge is required to understand that a delicate organ like the larynx cannot be *brutalisé* in this manner with impunity. The fact that the Crown Prince had been subjected to such barbarous usage at once explained the proneness of the parts to become congested without any apparent cause, which had previously rather puzzled me. Every one knows that local inflammation follows an accidental burn, and there is no special sanctity about a similar injury inflicted by a surgeon which prevents its being followed by the natural consequences. It is for this very reason, that a sufficient interval should always be allowed to elapse between the applications of the galvano-cautery. No point in pathology is better established than the connection between local irritation, or chronic structural changes induced thereby, and the development of cancer. Whether this terrible disease be constitutional or not in its origin, there can be no question that the determining cause of its appearance is in very many cases an injury (as a blow), or a condition resulting from an injury (as a scar), or the persistent application to a particular spot of something that keeps the tissue inflamed and "angry" (such as a jagged tooth which chafes the tongue). Workers in paraffine and petroleum are particularly liable to cancer of the parts which are habitually exposed to the action of these substances. It is well known that a particular form of cancer, which formerly was common enough in England, is now almost extinct,* simply because, owing to the fact that the cause which produced it has ceased to exist. When soot commanded a good price, it had to be sifted; this operation necessarily involved a great deal of friction against the skin, whereby irritating particles were, as it were, rubbed into it, and "chimney sweep's cancer" was a frequent result. Nowadays it does not pay to sift the soot, and the disease to which it gave rise has disappeared.

**Die Krankheit Kaiser Friedrich des Dritten*, p. 3.

Among causes of local irritation, heat is certainly one of the most active. By far the most common seat of malignant disease in men is the mouth, which is more exposed than any other part of the body to irritation by hot substances. Every surgeon is familiar with this fact. Whether it be a lower lip on which the hot stem of a clay pipe or the smoldering paper of a cigarette has rested day after day; or a tongue exasperated by the frequent contact of acrid tobacco-smoke, or the mouthpiece of a foul pipe, or made raw by ardent liquors, or stung and blistered by fiery condiments, the cause is essentially the same, viz., the searing or irritation of the superficial covering by prolonged heat or pungent impressions. In Cashmir, where hot brasiers are often applied to the abdomen and thigh, cancer of these parts is not uncommon,† though all but unknown in either of these situations elsewhere.

It is highly probable that in addition to the local irritation some particular predisposition must exist in the patient, though in what this consists we do not know. That in a large number of cases the tendency to cancer is hereditary, there can be no question; and the truth of this would, I am convinced, be much more evident than it now is if the medical histories of families, as well as of individuals, were carefully inquired into and accurately recorded. Most men know what their father and mother died of; a large number are acquainted with the cause of the death of their grandfathers and grandmothers, but how few have any accurate knowledge as to the nature of the disease which carried off their great-uncles and great-aunts. This important and interesting subject cannot be pursued here, but it may be remarked that we know quite enough of the subject to enable us to say that where there is a history of cancer in a man's family, it would be well for him to avoid all causes of local irritation with especial care. Such a history existed in the case of the Crown Prince on the maternal side, for his mother's sister died of cancer, and his cousin, Prince Frederick Charles, had a malignant tumor removed from his face a year before his death, which did not recur, but might very likely have done so had he lived longer.

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* Erichsen: *Science and Art of Surgery*, th edition, London, 1888, vol. I., p. 1048.

† Sir James Paget: "Morton Lecture on Cancer and Cancerous Diseases," *British Medical Journal*, Nov. 19, 1887, p. 1093.

Now Prof. Gerhardt himself tells us that at a very early period of his connection with the case he suspected that the affection was malignant. This makes the manner in which he proceeded to deal with it simply incomprehensible, except on the supposition that his very anxiety made him reckless. It is certain that if the growth was not malignant from the first, Gerhardt, by his unmerciful use of the galvano-cautery, went the surest way to work to make it so. I do not say that he actually caused the cancer; no one has the right to dogmatize in medicine, which is still an inexact science in which nearly every fact is open to more than one interpretation. I do not hesitate, however, to say that the treatment adopted by Prof. Gerhardt was at once unscientific and injudicious. He cannot escape from this dilemma: Either his treatment was too thorough, or it was not thorough enough. If he believed the growth to be benign, the repeated burning to which he subjected it was barbarous; if, as he says, he was doubtful as to its nature, that very doubt should have stayed his hand, and have led him to invoke surgical aid much sooner than he did. On twelve consecutive days, according to his own admission, did this physician burn the Crown Prince's larynx with a red-hot wire, and again on four subsequent occasions at short intervals. Finally, as if all this were not enough, he thought it necessary to sear the edge of the vocal cord with a flat burner! There is no record in medical literature, so far as I am aware, in which the cautery, a most valuable agent if properly handled, was so terribly misused.

Some statistics have lately been collected which clearly prove* how rarely a benign growth becomes malignant, either spontaneously or when the *ordinary recognized methods of treatment* are pursued. What different statistical results would be forthcoming, if the method of treatment pursued by Gerhardt were widely practiced! Whether his ruthless cauterization actually caused the development of the cancer or not, there can be little doubt that he is largely responsible for the perichondritis which played so important a part in this sad case. Although the inflammation of the cartilage did not show itself till some time afterward, it is well known that the course of this affection is very slow, and at first extremely insidious. The *processus*

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* *Centralblatt für Laryngologie, &c.*, Juli. 1888.

vocalis, which was the first seat of the perichondritis in this case, is a point where the mucous membrane itself forms almost the sole covering of the cartilage. Hence the spot which was the object of Gerhardt's misdirected energy is one that is peculiarly vulnerable.

To sum up : If the growth was benign in the first instance, there is, in my opinion, only too much reason to think that Gerhardt's burnings must be held answerable for its subsequent transformation into cancer ; if it was malignant from the first, the disease was undoubtedly aggravated by the treatment.

CHAPTER XVI.

THE CROWN PRINCE IN ENGLAND

The Crown Prince in the Jubilee Procession.

On June 14 their Imperial Highnesses arrived in England. With the view of sparing the illustrious patient the fatigue of talking more than was prudent in his condition, it had been arranged that he should stay at some quiet place outside London, and take no part in the Court festivities beyond appearing on a few of the more important ceremonial occasions. Accordingly he took up his residance at Upper Norwood. I need not recall the impression made by his splendid appearance as he rode through the streets of London on June 21 in the Queen's body-guard of Princes; he was the most striking figure in that historic pageant, and was hailed by the enthusiastic crowd as a King of men by gift of nature as well as by right of birth. Few could have thought, on seeing him then, in the very prime of his magnificent manhood, that behind the hero of Königgrätz, Wörth and Sedan, there rode on that day of triumph a grimmer conqueror, who, before another year had passed, would have laid that stately form in the dust.

On the day of His Imperial Highness's arrival at Norwood I made a careful examination of his throat, and found that only a small portion of the growth, not more than one-third of its original bulk, now remained. The little tumor itself was red, but the mucous membrane immediately surrounding its base was almost natural in color; there were, however, scattered patches of hyperæmia in different parts of the larynx. This slightly unhealthy condition of the lining membrane of the larynx, which, as I have already pointed out, was probably the result of the severe burnings by Gerhardt, caused the Prince to catch cold on the slightest exposure.

Dr. Norris Wolfenden.

Before the Crown Prince's arrival, I had informed Count Radolinski that when His Imperial Highness came under my care, all local treatment would have to be carried out either by myself or by some competent specialist thoroughly acquainted with my methods. To this the illustrious patient at once consented, but considerable opposition was raised by Dr. Wegner, who said that Dr. Landgraf had accompanied His Imperial Highness for that very purpose. I reminded Dr. Wegner that he himself had told me that Landgraf was sent expressly that he might be at hand if tracheotomy became suddenly necessary; that the young man had been described to me simply as a military surgeon, and that I knew nothing of his ability as a laryngoscopist. Under these circumstances, I said it would be impossible for me to accept the assistance of Dr. Landgraf in carrying out the details of my proposed line of treatment, and I requested that my colleague, Dr. Norris Wolfenden, one of the Physicians to the Hospital for Diseases of the Throat, should be associated with me in the capacity of resident medical attendant on the Crown Prince. This was agreed to, and Dr. Wolfenden accordingly took up his residence at Norwood. On June 15 I received from him the following report: "The larynx is large and well formed, but, owing to the slope of the epiglottis, the view of the interior of the laryngeal cavity is not so easy to obtain as it is in an average case. The under surface of the epiglottis is slightly congested on the right side, and the cushion is rather full. The left ary-epiglottic fold is a little puffy at its lower and posterior part. The left ventricular band is very slightly swollen anteriorly so that the outer border of the left vocal cord in this situation is just covered; the right ary-epiglottic fold is normal, and the inter-arytenoid fold toward the left side has lost its sharp definition; an enlarged vessel is seen on the right ventricular band, which is otherwise healthy. The left vocal cord is of a pale pink color. At its posterior extremity there is a roundish growth about three millimetres in diameter and two in height. On whispering, both the ab- and the ad- ductive action of the left vocal cord is seen to be feeble, but on loud phonation the latter movement shows no defect. The right vocal cord is healthy. In the subglottic region there is slight congestion, but no thickening is visible."

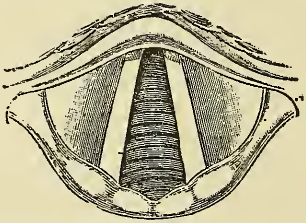

Fig. 4. — Sketch made June 28, showing the larynx after complete removal of the growth. There is a very slight thickening near the posterior extremity of the left vocal cord. (For further explanations, see Fig. 1, p. 104.)

It will be seen, both from Dr. Wolfenden's very careful report and from my notes, that His Imperial Highness's throat was still somewhat congested, and I thought it necessary to get rid of this condition before further active measures were employed. With this object sedative and astringent powders were blown into the windpipe, and after a few days the parts were brushed with a solution of perchloride of iron. His Imperial Highness came to my house nearly every day for treatment, and in the evening he was seen by Dr. Wolfenden. On June 25, the Prince had a rather sharp attack of catarrhal inflammation involving nearly the whole of the throat, causing swelling and tenderness of the uvula, and giving rise to slight difficulty in swallowing.

My Fourth Operation.

These symptoms, however, speedily subsided, and as nearly three weeks had passed since the previous operation, I thought it time to make another attack on the growth. On June 28, in the presence of Drs. Wegner and Wolfenden, I succeeded in bringing away with the forceps what appeared to be all that was left of it. Dr. Wegner at once took possession of the substance which had been removed, and packed it up carefully with his own hands, declining even the assistance of my secretary. He then sealed the little packet, which was conveyed by one of the Royal messengers to Berlin, and handed to Prof. Virchow for examination. The following is a translation of that gentleman's report:

PROF. VIRCHOW'S REPORT* ON THE PORTION OF GROWTH REMOVED FROM THE LARYNX OF H. I. H. THE CROWN PRINCE OF GERMANY, BY DR. MORELL MACKENZIE, ON JUNE 28.

"At midday this day, I received by special messenger from General-Arzt Dr. Wegner, a sealed flask containg the small portion of the pathological growth just removed from the larynx of H. I. and R. H. the Crown Prince. The object was in absolute alcohol in one piece, and though somewhat shrivelled was well preserved. It had a flat base of longish oval form 5 millimetres long and 3 millimetres broad, upon which was a small semi-spherical granular surface, about 2 millimetres high. The latter surface had a gray color, with a faintly ruddy tint; but the base was almost black. This was evidently from the action of some preparation of iron, for when moistened with hydrochloric acid the dark hue gave place to a faintly yellowish tint, which changed to an intense blue color on the addition of a little cyanide of potassium. The paler portions of the growth also showed this reaction in a higher degree. We must assume, therefore, that the iron preparation affected the whole surface, but that only the underlying portions preserved the blue-black tint, the superficial parts having become decolorized; further, that the flattish base represented the site of attachment of the portion in question, although its black color might at first give the idea that it had been superficial (in the larynx), and therefore more exposed to the action of external operations.

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* *Brit. Med. Journ.*, vol. ii., 1887, p. 199.

Further examination showed that the flattened base consisted of club-shaped, rounded papillary outgrowths lying in juxtaposition; moreover, that a whitish incision wound, hardly one millimetre wide, ran nearly across the middle of the base, following the long axis pretty closely, and almost wholly concealed by the surrounding papillary outgrowths.

Microscopical examination showed still more decisively than on the previous occasion that the surface of the excised portion was almost wholly occupied by papillary outgrowths of various size. Only in the immediate neighborhood of the surface of excision was there found a small zone of perfectly smooth superficial tissue; within the papillæ the large and hard epithelial cells, in layers and flattened towards the outer parts, represented by far the chief portion of the new formation; the connective-tissue framework was thin, soft, and vascular. No peculiar cell-formation was observed.

The incised surface afforded an irregular, soft and slightly vascularized tissue. *No deep layers of tissue, as after the first, and still more the second, operation, had been removed.* The section had been made very near the surface, so that only mucous membrane was removed. Thus only a little tissue, and that difficult to handle, was afforded for the purpose of an opinion on the structure of the underlying parts.

No alveolar structure, or deposition, or penetration of epithelial masses could anywhere be perceived in this tissue. It consisted of young connective tissue, which had increased not toward the deeper part, but toward the surface, and contained elements some of which were proliferating. Nowhere did this proliferation reach the character of an independent centre of formation. *Thus this excised portion in a still higher degree than was the case with the portions obtained by the previous operations, has shown itself to be a hard, compressed,* warty growth, that has started, from a moderately irritated and *thickened surface,* and the examination of its base has not afforded *the least support for the idea of a new formation penetrating inward.*" *

RUDOLF VIRCHOW.

"*Pathological Institute, Berlin.*
July 1, 1887."

It will be seen that this report, so far as it went, was as satisfactory as those which had preceded it. As only tissue belonging strictly to the growth had been removed this time, no opinion as to the underlying structures could, of course, be given. On both the former occasions, it will be remembered, Prof Virchow had dwelt with some emphasis on the fact that the forceps had brought away not only a complete section of the tumor, but portions of the structures on which it was seated, which could thus be seen to present no suspicious appearance. I think it right to insist on this, because both Gerhardt and Bergmann speak as if only shreds from the surface of the tumor—the outer husk, as it were—had been submitted to Prof. Virchow. The eminent pathologist's own words, in the report just quoted, as well as in the two preceding ones, leave no shadow of doubt on this point. It is impossible to get over his testimony, unless it be supposed that the creator of scientific pathology could not distinguish healthy from diseased tissue in a case where the merest beginner in microscopic work could do so without trouble. The notion is as preposterous as it would be to say that Gounod or Verdi could not distinguish a true note from a false one.

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* It has already been pointed out (p. 119) that it is the *ingrowth* of epithelial tissue, here once more expressly stated to have been absent, which is the distinctive feature of cancer as comparable with other new growths. The italics in the above report are not in the original.

Visit to the Throat Hospital.

This seems the most appropriate place to mention a pleasant episode belonging to this period, though it has nothing to do with the medical history of the case. On July 15 the Crown Prince paid a visit to the Hospital for Diseases of the Throat, Golden Square, an institution which, since I founded it in 1863, has relieved more than 105,000 patients. I was unfortunately too ill to be present on the occasion, but I was informed by the members of the committee who had the honor of receiving the illustrious visitor that His Imperial Highness expressed himself greatly pleased with all he saw. He showed the greatest interest in the patients, to each of whom he spoke a few words of kindly encouragement. A little girl who had undergone the operation of tracheotomy was sitting up in bed nursing a doll. On being asked by the Crown Prince, "Which is the patient, you or the doll?" the little mite answered, "Sure I don't know which it is, my dear!" which delighted His Imperial Highness. There happened to be three German patients in the hospital at the time, and of them naturally the Crown Prince took special notice, asking each of them what part of Germany he belonged to, and a number of other questions. In the crowded out-patient room again he spoke to several of the sufferers awaiting their turns to be attended to.

The Isle of Wight.

Very little reaction followed the removal of the last portion of the growth, and the august patient proceeded to the Isle of Wight, where Norris Castle had been placed at his disposal by the Duke of Bedford. For reasons which will subsequently appear (see p. 248), I think it well to mention here that it was the Crown Prince himself who chose the Isle of Wight as a place of residence. He was very fond of the island, and he liked Norris Castle, where he had stayed before, and which had the advantage of being close to Osborne. Dr. Wolfenden continued in attendance, and it was arranged that I should go down once a week.

A New Symptom.

His Imperial Highness much enjoyed his stay in the Isle of Wight, and although I thought the climate seemed to have a relaxing effect, he said he felt well, and was not tired after taking exercise.

On the day of the great naval review (July 23) the Crown Prince talked a good deal, and was very hoarse for a day or two afterward. On July 21 Dr. Wolfenden first noticed a slight swelling on the posterior surface of the arytenoid cartilages; this observation I confirmed at my next visit. The thickening was in the form of a yellowish ridge; it projected to the extent of about one millimetre, and extended across from the outer border of one cartilage to the corresponding part of the other.

The appearance of this new feature in the case caused me considerable anxiety, for I could not help fearing that it indicated inflammation of the perichondrium, if not disease of the cartilages themselves. I therefore warned the Crown Princess and other exalted personages that the possibility of the occurrence of serious perichondritis at some future date must be taken into account.

Galvano-Cautery as it should be used.

Toward the end of July there was some appearance of recurrence at the seat of the growth which I had removed. It did not project sufficiently for the blades of the forceps to catch it; I therefore determined to destroy it with electric cautery. This I did in a very careful manner, using an instrument specially constructed for the purpose by my assistant, Dr. Robert C. Myles, now of New York. The electrode, the tip of which was bent at a right angle so as to reach under an overhanging ledge, was guarded by two ivory plates fastened on with silk thread covered with hardened gum-arabic, a substance which has been found to be an excellent non-conductor of heat. In this way only the tiny point remained free to touch the part to which it was applied. It was thus impossible to burn any part of the larynx except the spot which it was desired to reach, nor could the heat of the incandescent point be felt by the parts which it did not actually touch, as is often the case with the ordinary instruments. Every provision against all conceivable accidents having thus been made, on August 2 I applied the cautery, using the utmost gentleness in manipulation, and merely touching the site of the growth with the point. The Crown Prince felt hardly any inconvenience from the application, which was not followed by any appreciable reaction. The next day a small, flat eschar was visible at the spot which the cautery had touched, but Dr. Wolfenden informed me that there was no appearance of inflammation round it. Six days later I again applied the galvano-cautery, with the same precautions as before, in the presence of Drs. Wegner and R. C. Myles.

Scotland.

On August 9, the Crown Prince started for Scotland, accompanied by Dr. Wegner, Dr. Landgraf, and Mr. Mark Hovell, Surgeon to the Hospital for Diseases of the Throat, who had succeeded Dr. Norris Wolfenden as Resident Physician, domestic circumstances preventing the latter gentleman from continuing his services. The Crown Prince went on to Braemar, attended by Mr. Hovell; whilst Drs. Wegner and Landgraf remained at Edinburgh, so as to be within reach in case of emergency. As there has, I believe, been a good deal of comment on this arrangement, I may here take the opportunity of stating that I had nothing whatever to do with it. My advice on the subject was not asked, and was therefore not given. The Crown Prince simply acquainted me from time to time with the arrangements which had been made. Whilst informing me that Wegner and Landgraf were to stay at Edinburgh, he told me that it had been settled that they should both pay him a visit at Braemar.

On August 11, Mr. Hovell wrote to me that a small slough, caused by the cautery, had come away, and two days later he informed me that the slight wound had healed. The growth thus destroyed never returned.

During His Imperial Highness's stay at Braemar a marked improvement took place in the condition of the larynx. The lining membrane was much less congested, and his voice became strong and almost natural in tone. The Queen expressed to Mr. Hovell the pleasure she felt at hearing the Crown Prince speak once more in his own voice. I visited the Prince at Braemar on August 20, and found that the ridge on the posterior surface of the arytenoid cartilages had almost disappeared. I saw him again in London on August 31, when I noticed that the left cord moved more freely than before, though its action was still imperfect. His general health at this time was excellent.

Plans for Autumn.

As His Imperial Highness had expressed a wish to go for some weeks to Toblach, in the Tyrol, of which place he had very pleasant reminiscences from a previous visit, and as I saw no objection to his gratifying his wish in that respect, it was arranged that he should go to the Austrian Alps. I advised him, however, if he found the climate of the Tyrol at all cold to go further south. He determined not to pass through Berlin, greatly as he should have liked to see the aged Emperor. As the Crown Prince himself pointed out, however, if he went to Berlin he would have had to receive visits from a very large number of people and this would have involved an enormous amount of talking, which he feared would hurt his throat. In this decision there can be no doubt that from a medical point of view His Imperial Highness was entirely right; a visit to Berlin under such circumstances would have been only too likely to do him much harm. The Prince also told me that Dr. Wegner's place would be taken for a time by Dr. Schrader, as the health of the former was not quite satisfactory, and His Imperial Highness said that he himself was now so well that he did not require any other doctor with him but Mr. Hovell, with whom he expressed himself highly satisfied. For this reason, he added, Dr. Landgraf would be relieved of further attendance on reaching Germany.

Gerhardt's Assistant as a Laryngoscopist.

With the disappearance of the young Stabsarzt from the scene I feel it necessary to say a few words on a subject I would have gladly refrained from touching on. The importance attached by my German critics, however, to what I may call Dr. Landgraf's evidence, leaves me no alternative but to speak quite plainly on this matter. After Dr. Landgraf's first examination, the Crown Prince complained to me of his roughness and want of skill, and on many subsequent occasions His Imperial Highness assured me that after the young German surgeon had used the laryngoscope, his throat felt sore and tired for several hours. The Crown Prince, whose consideration for the feelings of others was of the most chivalrous description, bore with the infliction as long as he possibly could; but after a time he asked me if I could not give Landgraf a hint to be more gentle and to take less time in making his examinations. I ventured, however, to represent to His Imperial Highness that this would place me in a very invidious position, and that it would be said in Germany that I did not wish Landgraf to get a proper view of the larynx. I had two or three times the opportunity of seeing him examine the Crown Prince's throat, and his performance was almost as painful for me to witness as it was for the august patient to undergo. Just before his departure for Scotland His Imperial Highness again complained to me about Landgraf's clumsiness, and I felt it necessary to tell Dr. Wegner that if the young surgeon did not mitigate his style of examination, I was sure that the Crown Prince would send to Berlin for some less inexperienced laryngoscopist to replace him. Dr. Wegner begged me to use my influence with His Imperial Highness to prevent a step being taken which would have a most injurious effect on Landgraf's career, while he promised to warn the young surgeon to be more careful in future.

I confess after seeing how little familiar Dr. Landgraf was with the laryngoscope I did not attach any importance whatever to his observations. And it would seem as if Landgraf was regarded at Berlin very much as he was by me, for though this gentleman every few days sent from the Isle of Wight and elsewhere most alarming reports to the Prussian capital, no more notice was taken of them than if they had been drawn up by a person who had never used the laryngoscope. I shall refer to this matter again in dealing with Dr. Landgraf's separate report.

When the Crown Prince was staying in the Isle of Wight, Landgraf, who had then been some weeks in attendance, seems to have suddenly become distinctly aware that the left vocal cord did not move quite as it should do. This startling discovery he forthwith communicated to some of His Imperial Highness's suite, and it finally came to the ears of the Crown Prince, who was rather alarmed about the matter. When, however, I explained to him that the condition which Landgraf had just noticed for the first time * had existed from the date of my first visit to Berlin, he was perfectly satisfied! Again Landgraf appears to have mistaken the ridge outside the larynx behind the arytenoid cartilages which I have described (p. 132) for a swelling on the posterior wall, that is to say, inside the larynx below the level of these cartilages. On this, as I afterward learned, he founded most alarming reports of cancerous infiltration spreading round the orifice of the windpipe, which, as we now see, have been duly deposited in the archives of the Prussian Kingdom!

I found that Dr. Wolfenden entirely agreed with me as to Dr. Landgraf's want of laryngoscopic skill. To him also the Crown Prince repeatedly complained of the German surgeon's examinations, and my colleague expressed to me his surprise that if it was thought necessary to send any one from Berlin, a more competent observer was not chosen.

When, in November, a report based upon Landgraf's observations was drawn up at Berlin, I requested Dr. Wolfenden to give me his views on the subject in writing. The following is his statement:

"I never considered Landgraf a person to be treated seriously.

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* At the time I was under the impression that Landgraf had recognized the imperfect action of the left vocal cord for the first time, and I am still unable to account for his extraordinary excitement on any other ground. I was very much surprised, therefore, on looking over Dr Landgraf's report, to find that this condition is mentioned in his first letter to Berlin. The only explanation I am able to offer now is that, although he denies it, Dr. Landgraf must have received some useful "hints from Prof Gerhardt" It would appear, therefore, that Landgraf in his earlier reports embodied the hints, whilst on a certain date he actually saw what he had previously described from the "Informationen" of Prof Gerhardt (*Op cit.*) which the professor evidently gave to his assistant before he heard that the young surgeon had been appointed to "control" me. After that time Gerhardt says, "I *ceased* to have any correspondence with Dr. Landgraf on this subject" (*Op cit.*, p. 15.) As all the instructions were evidently already given, no further correspondence was required.

Whatever he may be as a surgeon, and of this I have no knowledge, he is certainly nothing of a laryngoscopist. His laryngoscopic examinations of the Crown Prince were prolonged, unskilful, and exceedingly tiresome, so much so that the Crown Prince made a complaint after the second examination at Norwood, and asked me whether he should not speak to Landgraf and request him to desist from examining his throat daily. The Crown Prince stated also that Dr. Landgraf's examinations were painful to him, and his manner objectionable. I had not the slightest confidence in the accuracy of Dr. Landgraf's observations, as he constantly imagined he saw things which were not present, and at the same time overlooked the most obvious phenomena. Notwithstanding this, I never stood in his way, and whenever he expressed a desire to examine the Crown Prince's throat, I always permitted him to do so before I myself applied any medicament."

It is with the greatest reluctance I have had to deal thus frankly with Dr. Landgraf, but so much has been made by my opponents of his testimony, that I am compelled in self-defense to show exactly what value should be attached to it.

Possibilities of the Case.

Shortly before their Imperial Highnesses left England, I thought it my duty to lay before the Crown Princess my views as to the prospects of the Prince. I told the Princess frankly that although at that time the affection did not seem to me to be of a malignant nature, it might nevertheless turn out to be so. I fully explained to her what in my opinion the four possible developments of the case might be: 1. The tumor having been destroyed might not grow again, the affection being thus practically cured. 2. The tumor might sprout up again, and require to be removed or destroyed perhaps more than once. 3. A condition known as "multiple papilloma" might result, which was dangerous if not properly treated, but not necessarily fatal. 4. The disease might be cancerous already, or cancer might develop later on. I impressed upon Her Imperial Highness that although at that moment everything looked most promising, the possibility of an eventual unfavorable development must not be ignored. That I laid my views before the Princess in the frankest and most unreserved way I have documentary evidence to prove, and I am quite ready to place this evidence before the President of the College of Physicians and the German Ambassador acting together. With the Crown Prince himself I of course could not discuss the situation with the same freedom; but whilst encouraging him as to his condition, I was careful not to say anything of a misleading character.

CHAPTER XVII.

TOBLACH — VENICE — BAVENO.

The Case enters on a New Phase.

The Crown Prince left London on September 3, and traveled by Frankfort and Munich to Toblach, which he reached on the 7th.

In Mr. Hovell's note-book, under the date of September 9, I find the following note: "During the journey the Crown Prince's throat has certainly been more relaxed; on the 6th I noticed that the cushion of the epiglottis was congested and slightly swollen; on the 7th, on arriving at Toblach, this feature had almost entirely disappeared, but the right ary-epiglottic fold was slightly inflamed, just at the point where it joins the arytenoid cartilage, and the cartilage of Wrisberg was more prominent on this side; the inter-arytenoid fold was also slightly puffy, though of normal color. On the 8th, the congestion of the right side had entirely disappeared, but there was a small hyperæmic spot just below the inter-arytenoid fold. There was no swelling whatever, however, in the situation. I observed slight thickening at the hinder part of the left vocal cord, rather farther back than the site of the growth which Sir Morell had destroyed. There was increased hoarseness, with some congestion of the larynx, which, however, soon subsided. On the 14th, an oblong swelling, about 5 millimetres in length and 3 in width, was noticed half an inch below the middle of the left cord and parallel

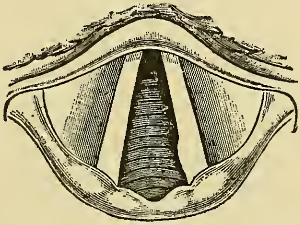

Fig. 5.—Sketch showing Mr. Hovell's observations on September 9.

with its margin. On the 18th, the tumefaction at the posterior part of the cord had disappeared, but the new subglottic tumor was still visible."

On the 20th, when I arrived at Toblach, the swelling was nearly round, and measured more than half a centimetre in diameter, but projected very slightly from the side of the larynx. The Crown Prince looked well, and Dr. Schrader gave me a very satisfactory report as to his general health. When out walking, however, he seemed to get tired sooner than the rest of the party. Two days after my arrival he caught cold, and on the following day he was languid, had no appetite, whilst his temperature was 101° F., and the left ary-epiglottic fold suddenly became œdematous; but this condition, together with the feverish symptoms, disappeared in twenty-four hours. Although the œdema was apparently due to inflammation from taking cold, the possibility of its being caused by limited perichondritis was discussed at the time. It should be noted that the acute œdematous swelling just referred to seemed to be altogether independent of the little tumor beneath the edge of the vocal cord, which became gradually smaller but did not entirely disappear.

A Deceptive Lull.

It had already been arranged that the Crown Prince should spend the winter in Italy, and San Remo was now decided on as the most suitable place for him. As the weather was becoming rather cold at Toblach, I advised His Imperial Highness to spend a week or two previously at Venice, of which he was very fond. He accordingly went there on September 28, and stayed till October 6, the condition of his larynx meanwhile steadily improving. On the 7th he went to Baveno, where Mr. Henfrey had placed his beautiful villa at his disposal. Here I found the Crown Prince's throat in a very satisfactory state, except that the left cord did not move quite freely, and its posterior extremity was on a somewhat higher level than the corresponding portion of the right. I judged that some perichondrial inflammation had taken place about the anterior spur of the left arytenoid cartilage, and that this had pushed the vocal cord a little upward in that situation. There was no redness, however, at that spot, and I therefore hoped that the morbid process had been arrested. In the larynx itself there was at this time nothing beyond slight general congestion and the remains of the subglottic swelling which had been discovered on September 14.

Hopes and Fears.

I then took leave of His Imperial Highness, not expecting to see him again for many months. That I did not, however, even at that time take an entirely optimistic view of the situation is clearly shown in the following passages of a letter which I wrote to Prof. Oertel of Munich on October 21 in reply to one which I received from him soon after my return to London:

> "With regard to your inquiries about the Crown Prince, I am happy to tell you that when I saw him at Baveno he was going on very well. There has never been anything at all characteristic of malignant disease as far as (the naked eye) appearance goes, so that my treatment has throughout been based on the observations of your great pathologist. Valuable, however, as Prof. Virchow's investigations have been, they of course only furnish negative evidence, and I shall not feel quite safe from anxiety until six months have elapsed since the application of electro-cautery. I need scarcely assure those who know me that I have never been in the least unwilling to meet my German confrères, and should any unfavorable symptoms unfortunately develop, I should be the first to ask for the co-operation of one of your countrymen.
>
> "With regard to the publication of bulletins, I quite agree with you that frequent official communications are desirable, as they often allay anxiety, and prevent the spread of false news. In the case of a private person, however, this question always rests with the patient, and it does not seem right that because the sufferer is of the highest rank his own feelings in the matter should be disregarded.
>
> "Yours truly,
>
> "MORELL MACKENZIE."

Clouds Gathering.

Things went on well till about the middle of October, when Mr. Hovell's reports began to be less favorable. On the 17th, the larynx became acutely congested, and ten days later the subglottic swelling was seen to be increasing in size, and the whole of the left side of the larynx was somewhat enlarged. On October 28, the surface of the tumor became slightly ulcerated, and the vocal cord above it was slightly swollen along its free edge. In spite of this, the illustrious patient's voice was quite clear, and in the opinion of the Crown Princess perfectly natural. A mournful interest attaches to this remark of Her Imperial Highness, for this was the last time she was ever to hear the true sound of that beloved voice. The next day the Crown Prince became hoarse again, and on October 30 a new swelling was noticed beneath the *right* vocal cord, whilst the one on the other side was seen to be throwing out off-shoots. Nevertheless, except the renewed hoarseness, there was little to indicate, either to the illustrious sufferer himself or to others, that a change for the worse had occurred.

On November 3, the Crown Prince proceeded to San Remo, where a suitable residence, the Villa Zirio, had been prepared for him. On that day Mr. Hovell perceived that the subglottic tumor had grown considerably, being then rather more than one centimetre in diameter, and raised to the extent of about four millimetres.

The extension of the growth since it was first observed had always been in an upward direction. On the morning of the 4th some œdema was seen at the base of the left arytenoid cartilage; this disappeared in the evening, but was again present on the following morning. As the symptoms now presented a decidedly ominous appearance, an urgent message was sent to me, on receipt of which I at once started for San Remo, which I reached on the evening of the 5th.

CHAPTER XVIII.

SAN REMO — THE WORST FEARS CONFIRMED.

A New Growth Appears.

On the morning of Nov. 6 I examined the Crown Prince's throat, which I found in exactly the condition described in the reports. The mucous membrane over the left arytenoid cartilage was moderately œdematous, and of a bright pink color. The new growth was bright red in color, rather more prominent in the centre than elsewhere, and ulcerated on the surface. Its appearance was altogether unlike that of the one which I had destroyed, and the other swellings which had from time to time shown themselves in the larynx; it had in fact a distinctly malignant look. Without rising from my chair I informed His Imperial Highness that a very unfavorable change had taken place in his throat. He said, "Is it cancer?" to which I replied, "I am sorry to say, sir, it looks very much like it, but it is impossible to be certain." I felt that evasive answers, which for the patient's own sake medical men are often compelled to give under similar circumstances, would in the present instance have been out of place. The Crown Prince received the communication with perfect calmness. After a moment of silence he grasped my hand and said, with that smile of peculiar sweetness, which so well expressed the mingled gentleness and strength of his character, "I

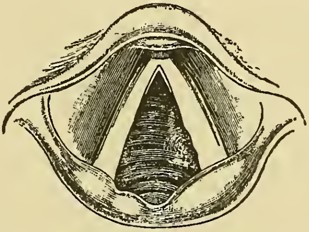

Fig. 6.—Sketch made Nov. 6, showing a large new growth *half an inch below* the left vocal cord, and a smaller one *below* the right cord.

have lately been fearing something of this sort. I thank you, Sir Morell, for being so frank with me." In all my long experience I have never seen a man bear himself under similar circumstances with such unaffected heroism. He showed not the least sign of depression, but spent the day in his ordinary occupations; and at dinner time that evening he was cheerful without apparent effort, and chatted freely in his usual manner. A day or two afterward, in reply to a question as to his general health, the Crown Prince said he had never felt better in his life, adding, with a smile, " Under the circumstances, I really must apologize for feeling so well!" To ap preciate the extraordinary fortitude displayed by this magnanimous man, it must be remembered that what he had heard was something much worse than a mere sentence of death. He believed at that moment that he was doomed only too surely to a lingering agony worse than death. There is nothing more terrible than the struggle of a powerful constitution with the slow but relentless advance of malignant disease, when the life is as it were eaten out of a man bit by bit, and each day's sufferings are made worse by the anticipation of those that are to come. This was the prospect which the Crown Prince "looked forward to without fear, placing his trust in God," to use his own words; it was one which would have struck dismay into the heart of many a brave man who has never felt fear on the battlefield.

With the view of having the diagnosis confirmed by the evidence of the microscope, it would have been more satisfactory to have removed a portion of the growth with forceps, and to have submitted it to Prof. Virchow. Such a procedure, however, was clearly out of the question whilst the larynx was in so " angry " a condition as it then was; any additional irritation would have certainly made matters worse. It was fortunate for me that I did not attempt anything of the kind, for two days later, acute œdema of the upper opening of the larynx on both sides set in spontaneously; this condition would inevitably have been attributed to my operation had I ventured to perform one.

A Consultation Called.

In such a serious state of affairs it was of course desirable to have further advice, not that much could be hoped for from medical skill in such a case, but that no opportunity of possible help, however slight, should be neglected.

The question was: Where should it be sought for? It was before everything essential to have the assistance of men who would bring absolutely unbiased judgments to the case. At Berlin, to which my thoughts naturally first turned, there was no one (setting aside Gerhardt and Tobold, who had already strongly committed themselves to an opinion on the matter) but Prof. Bernhardt Fränkel and Dr. Hermann Krause. Prof. Lewin, who had formerly been a distinguished laryngologist, had long since given up the specialty, which has for some reason or other never flourished very vigorously in the Prussian capital. The want of official recognition by the University, from which it suffered till comparatively recent times, has probably been the chief cause of its feeble vitality in that city. At Vienna, on the other hand, which was the cradle of this department of medical science, the tradition has been kept up, and laryngology has always been well represented in the professorial body.

The Counsellors Chosen.

I now carefully weighed the respective merits of the three leading throat-specialists in the Imperial City. If I had been selecting an *operator*, I probably should have chosen Prof. Störk; and if I had been dealing with a disease of such obscurity that the the widest experience was required, I should have invited Prof. Schnitzler, but at that moment the *diagnosis* appeared only too clear. In the end I selected Prof. von Schrötter, mainly in the hope that his extensive knowledge of respiratory affections would enable him to make some practical suggestions in connection with *treatment*. Of the two available laryngologists at Berlin I chose Dr. Krause, with whose knowledge and ability I had been greatly struck at the International Medical Congress held at Copenhagen in 1884. On that occasion I was president of the Section of Laryngology, a dignity which was conferred on me as a special honor, contrary to the almost invariable custom at these gatherings where the presidential chairs are filled by local men of "light and leading." In that position I had an excellent opportunity of forming a judgment as to the abilities and attainments of the principal European and American specialists. Amongst them all no one made his mark more decisively than Krause, who at once took his place as one of the leading laryngologists in Germany. The distinction which he earned at Copenhagen has been more than sustained by his subsequent work, of which I shall speak more in detail further on. (See page 258).

The Consultation.

At my request, therefore, Prof. von Schrötter and Dr. Krause were summoned to San Remo. On November 9, a preliminary meeting took place in my room at the Hotel Méditerranée, Prof. von Schrötter, Dr. Schrader, Dr. Krause, Mr. Hovell, and myself being present. I gave an account of the case from the time I first had seen the Crown Prince in May till the day I took leave of His Imperial Highness at Baveno in October. Mr. Hovell then related the subsequent progress of the case from that time up to the date of our meeting. I then described the appearance of the new growth as I had first seen it on November 6, and concluded by saying, "*This* growth looks like cancer." Prof. von Schrötter thereupon said that, after my very clear statement, he had no hesitation in pronouncing the disease to be cancer; he was so sure of it that he felt there was no need for him to see the patient. Whilst thanking the professor for this flattering testimony to my descriptive powers, I ventured to point out that it was hardly worth his while to have come all the way from Vienna to give it, and I hinted that it would scarcely be treating the illustrious patient with proper consideration to offer him a second-hand diagnosis. Prof. von Schrötter then consented to go with us to the Villa Zirio, where the Crown Prince's throat was duly examined.

Upon returning to the hotel to continue the consultation, Prof. von Schrötter wished to dictate a report *ex cathedrâ*, but as there was some divergence of opinion between him, Dr. Krause and myself, it was agreed that each should give his opinion separately in writing. Schrötter affirmed that the disease was cancer, and recommended excision of the entire larynx. Dr. Krause remarked that it appeared to him that it was highly probable that the disease was a "malignant neoplasm," but as the view of the interior of the larynx was almost completely shut out by œdema, he would be glad to know whether iodide of potassium had been administered with the object of clearing up the diagnosis by the exclusion of the presence of any chronic contagious disease.* In my protocol I stated that in my opinion the disease was cancer, pointing out, however, that in the absence of microscopic evidence such a diagnosis could not be made with certainty. I therefore recommended that as soon as the œdema had disappeared, a small piece of the new growth should be removed through the mouth and submitted to Prof. Virchow, on whose report as to its nature any future course of action should be based.

Conference with Prince William.

Whilst we were discussing the case from every side, we learned that Dr. Moritz Schmidt had come to San Remo with instructions from the Emperor to draw up a report on the case of the Crown Prince. We accordingly invited him to be present at the remainder of the consultation. In the evening Prince William, who had by this time arrived, desired that all the physicians and surgeons in attendance should be present at a conference in his room in the hotel. We had only been there a few minutes when the Crown Prince sent for me. I am not therefore in a position to say what passed at this meeting, but I understand that the chief subject of discussion was who should perform tracheotomy if that operation became necessary.

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* On the principle expressed in the old axiom, *Naturam morbi ostendit curatio*

Dr. Schmidt's Opinion.

The next day a further consultation took place at the Villa Zirio, in which Dr. Schmidt, by permission of His Imperial Highness, took part. On this occasion Prof. von Schrötter, without explaining why he did so, receded from his former position and advised against any external operation being undertaken, except tracheotomy, when the necessity for it should arise. Dr. Krause and myself adhered to the views we had already expressed. Dr. Schmidt put forward very strongly the idea that the disease might be the result of an infection which had remained in the system for many years, and urged that large doses of iodide of potassium should be given. Prof. von Schrötter here interrupted Dr. Schmidt rather warmly, saying, that such a notion was "an old wife's tale" (*altes Weibergeschwätz*). Dr. Krause, whilst allowing that the balance of evidence was altogether against Dr. Schmidt's view, said there could be no harm in trying the effect of the drug which had been proposed. To this Schrötter and I assented, though neither of us had the least belief in the theory on which the suggestion was based. I may mention here that before Prof. von Schrötter left San Remo, I again spoke to him on this subject, and he told me that he had only agreed to iodide of potassium being given, because no external operation was going to be done. Had such a measure been contemplated he assured me that he would not have sanctioned the administration of that remedy.

At this consultation it was agreed that a statement, setting forth the advantages and disadvantages of excision of the larynx, both partial and complete, should be drawn up and submitted to the Crown Prince, to whom the decision as to the course to be adopted should be left. I thought it better that the statement should be drawn up by a physician absolutely free from bias in the matter than by one who like myself had throughout the case shown himself opposed to severe measures, and at my request Prof. von Schrötter was good enough to undertake the preparation of this document. The results of these operations will be found set forth in Section III, Tables II and III in this work. A short bulletin was next drawn up, which it was understood was exclusively for the information of the Emperor. In this we expressed the belief that the disease from which the Crown Prince was suffering was cancer. In signing this document both Mr. Hovell and I considered that we did so subject to the reservation indicated in my special protocol of November 9. At this meeting it was also agreed that we should formally make the Crown Prince acquainted with our views at a personal interview. I requested Prof. von Schrötter to be our spokesman on the occasion, because where a communication of such importance had to be made, and a definite meaning had to be conveyed in carefully chosen words, it seemed best that His Imperial Highness should be addressed in his native language. I was afraid that if I myself undertook this delicate task it might afterward be said that I had not made the full gravity of his position clear to the illustrious patient, and had in this way influenced his decision as to future treatment.

The Diagnosis Communicated to the Crown Prince.

Prof. von Schrötter discharged his unpleasant duty with great tact and judgment in the presence of the Crown Princess and all the doctors. His Imperial Highness remained standing while the professor was speaking, and received the terrible communication without any emotion. He was the calmest person in the room. Though Schrötter did not use the word "cancer," he made it perfectly clear to the Crown Prince that that was what we believed him to be suffering from. I am absolutely sure that His Imperial Highness was under no misapprehension on the subject.

The Crown Prince's Decision.

We then withdrew, after placing the statement as to the operations on the larynx in the hands of the Crown Prince. In the course of a few minutes we received a communication from His Imperial Highness, written with a perfectly steady hand, stating that he declined to have his larynx excised, but would submit to tracheotomy should it become necessary. It was then agreed that this operation should, when the time came, be intrusted to Prof. von Bergmann, unless difficulty of breathing came on suddenly, when it would have to be done by some one on the spot. Bergmann was selected, not because tracheotomy in a grown-up person suffering from intrinsic disease of the larynx is an operation of any particular difficulty, but because, as he had already been in attendance on the illustrious patient, it seemed right that he should do whatever had to be done in the way of surgery.

Publication of our Secret Report.

Before separating, we received the most solemn injunctions not to divulge our opinions as to the nature of the case or the practical results of our deliberations. The necessity of absolute secrecy on these points was impressed on us both by Dr. Schrader, and by Count Radolinski. We were given to understand that the German public was to be gradually prepared by a series of cautiously worded bulletins which should make the real state of the case generally known without shocking the feelings of the Crown Prince. This humane intention was, however, frustrated by the immediate publication of our private bulletin to the Emperor in the Official Gazette *(Reichs-Anzeiger)*. Not only those of the doctors who were still at San Remo, but the officials of the Crown Prince's court, were amazed on learning this event by telegraph. Whether the occurrence was simply due to a mistake, or whether there was some state reason for publishing the bulletin, I do not profess to know, but it seemed no less strange than unfortunate that so important a statement, made under the seal of the strictest secrecy, should have been at once published with the apparent sanction of the supreme authority, and should thus have been, so to speak, thrust without any disguise or palliation under the eyes of the person chiefly concerned.

I left San Remo on November 18, and at my last interview I made a careful examination of the Crown Prince's throat. The following are my notes: "The growth beneath the left vocal cord is smaller and less prominent, and the ulcer on its surface appears also slightly diminished. The œdema on the right side of the larynx has almost disappeared. There is scarcely any movement of the left vocal cord, which is congested and swollen. The right vocal cord is red, and is slightly thickened at its posterior extremity. The small growth below the right vocal cord remains unchanged."

From this date till the middle of December I received a series of reports signed by Dr. Krause and Mr. Hovell; the latter gentleman also sent me private letters containing references to the case, for which of course he is solely responsible.

Reports from San Remo. — November 18. — "Congestion of the mucous membrane. It is easy to see the *capitulum Santorini* at the apex of the left arytenoid cartilage; swelling less, right side free."

November 20. — "The ulcerating surface beneath the left vocal cord is less prominent, and the ulcer situated at the posterior part of the left ventricular band is smaller in size. There is slight movement of the left arytenoid cartilage. In other respects the appearance is the same. The voice is still rough, but clearer."

Mr. Hovell further reported to me that Dr. Bramann, chief assistant to Prof. von Bergmann, had been sent to San Remo by desire of the Emperor in order to be in readiness to perform tracheotomy, should it be necessary to do it suddenly.

November 28.— "There is now no ulceration to be seen. The part of the growth which first appeared is smaller and smoother. There is now a cicatrix on the portion of the ventricular band formerly occupied by an ulcer. The congestion of the larynx and the swelling of the left side are less. The right vocal cord is less swollen but still congested, especially on the *processus vocalis*, in which portion it is a little more swollen."

November 29.— "During the last week or ten days the enlargement of the submaxillary glands has materially diminished, especially on the left side, and these glands are now hardly to be felt."

On December 1, Mr. Hovell wrote to me as follows:

"All the local symptoms ameliorated. Dr. Bramann, who was very anxious to make a laryngoscopic examination, was allowed by His Imperial Highness to do so. He has evidently not had any practice in the use of the instrument, and certainly did not see much, if he saw anything at all."

The joint reports of Krause and Hovell then continue:

December 4.—"During the last week the swelling of the left side of the larynx has diminished to such a degree that the left ventricular band is seen at times to vibrate. The yellowish prominent ridge on the margin of the left ventricular band has now again diminished, although it was rather more prominent a few days ago. The congestion of the larynx has, on the whole, been less."

December 11.—"A few days ago two small nodules appeared on the edge of the left ventricular band, near its anterior part. They have increased in size, and have united to form one growth, which has been increasing rapidly, and now occupies the posterior three-fourths of the left ventricular band."

Bramann as a Laryngoscopist.

On this subject Mr. Hovell wrote to me as follows: "Three days ago Bramann again tried to use the laryngoscope, and caused the Crown Prince a good deal of annoyance. He introduced the mirror into the throat very fairly, but had very great difficulty in focussing the light. The luminous disc was seen to be bobbing about everywhere except on the laryngeal mirror. At last, however, he did get it on, but then he seemed to forget that the mirror was in the patient's throat, and kept it there exactly as he might have done on a *papier mâché* model. I am sure, however, he did not see much, as, after he had got the light, he slanted the mirror in such a way that it only reflected the back of the tongue. I had taken the precaution beforehand to tell Schrader what really was present, as I knew he would 'coach' Bramann on the subject. The latter, however, thought that he would make some discoveries for himself, and I understood from Krause, that he (Bramann) said that the tumor extended above the thyroid cartilage!! After Bramann's attempted investigation I told the Crown Prince that I thought it was not only useless for him to have his throat examined by that surgeon, but that it might give rise to erroneous statements being circulated respecting his condition. I reminded His Imperial Highness that Dr. Landgraf had sent most ridiculous statements to Berlin, and I said Bramann might do the same. I finally observed to the Crown Prince, 'I can see that Dr. Bramann is not accustomed to use the laryngoscope.' 'Yes,' said His Imperial Highness, 'you can *see* it, and I can *feel* it!'"

The following is the report of Dr. Krause and Mr. Hovell on December 13: "The growth has increased during the last two days, especially on its inner surface, which now forms an irregular projection toward the mesial line. This morning the left ventricular band is slightly swollen at its anterior part. The general congestion of the larynx has increased."

About this time I pointed out in England that the treatment which I had carried out had been unanimously agreed upon by all the physicians and surgeons in attendance on His Imperial Highness, after Virchow had published his report, and that it was not merely based on my own diagnosis. The circumstances which called forth this definition of my position, was an annotation in the *British Medical Journal* of December 10, 1887. The following is an extract from a letter which I published in the same journal on December 17:

> "When I arrived in Berlin, I gave it as my opinion that the appearances were negative; that is, that they were compatible with the growth being either malignant or benign. I therefore suggested that a portion should be removed *per vias naturales*, for microscopical examination, and the treatment which I finally recommended was based on the clinical aspects of the case, *plus the results of Prof. Virchow's microscopical examination.*
>
> "I may add that, as after Dr. Virchow had made his report, the proposed line of treatment was unanimously agreed to by those present at the consultation, all my colleagues were equally responsible for the views entertained at that period. There is no reason, therefore, why I should be singled out as having formed a 'clinical opinion,' or indeed as having arrived at any opinion different from that of my German colleagues. The only difference which existed was the different opinion held by my confrères before my removal of a portion of the growth, and [that which they entertained after]* the reception of Dr. Virchow's report thereon. I am, etc.,
>
> "MORELL MACKENZIE."
>
> "*December* 12."

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* This sentence, though in the original, was accidentally omitted by the printer.

CHAPTER XIX.

SAN REMO — SUSPENSE.

I am Recalled to San Remo.

On December 12, a further rapid development of the vegetations on the left ventricular band having taken place in the course of a few hours, it was feared that more alarming manifestations might follow, and I was again hurriedly summoned to Italy. I arrived at San Remo on Dec. 15, and was pleased to find a marked improvement in the condition of the Crown Prince as compared with what it had been a month before. The swelling of the submaxillary glands had subsided, and no trace remained of the inflamed and ulcerating tumor below the left vocal cord except a smooth, red scar. Covering the posterior half of the left ventricular band, however, were some small, white vegetations, which appeared here and there to be undergoing ulcerations. Mr. Hovell informed me that these vegetations had been much larger on the 13th, when they seemed to be hourly increasing in size; they had, however, begun to slough on the evening of the 14th. The day after my arrival I found that a considerable further diminution had taken place, both in their size and number. On that day I had the honor of accompanying the Imperial family to Ospedaletti, and I noticed with some surprise that the Crown Prince was the most vigorous walker in the party. His Imperial Highness complained to me of the conduct of Dr. Moritz Schmidt, who, as he told me, had thought fit to give a lecture on his case at Frankfort after his return from San Remo, in which he had openly stated that the disease from which the illustrious patient was suffering was of "contagious" origin. The Crown Prince expressed the greatest annoyance at Dr. Schmidt's indiscretion, and begged me to contradict the statement, for which I may here say there was not the shadow of a foundation.

A Favorable Turn.

As the laryngeal affection seemed to be in a somewhat active state, I determined to remain in the south for a little time, and on December 17 I went for a trip to Algiers, returning to San Remo on the evening of the 27th. I found that the vegetations on the left ventricular band were now very slight, and limited to its posterior part; there was, however, a little puffiness at the upper part of the band where it joined the ary-epiglottic fold, and the remains of the subglottic growth projected rather more toward the glottis. The larynx was rather congested, and could be felt from the outside of the neck to be somewhat swollen on the left side. On the whole, however, the condition of the august patient was much better than it had been at the time of my first visit to San Remo.

After my return home I continued to receive reports from Dr. Krause and Mr. Hovell as to the progress of the case from time to time. On January 2, in addition to the swelling below the right vocal cord, some tumefaction was noticed at the front part of the corresponding ventricular band, whereby the anterior extremity of the underlying cord was hidden from view. The congestion of the larynx and trachea had increased, and there was a copious secretion of mucus. On January 12, all that remained of the growth on the left ventricular band was a little thick-being which was fast diminishing. Since the date of the previous report there had been rather more swelling of the left side of the larynx, together with greater congestion, and a more profuse discharge of mucus. All these local symptoms, however, were said to be subsiding, and the illustrious patient's general health was quite satisfactory.

A Change for the Worse.

Almost immediately after this one of those sudden exacerbations of the symptoms occurred which formed so remarkable a feature of the case. I give below the detailed reports which I received from Dr. Krause and Mr. Hovell, as they supply an accurate picture of the clinical incidents from day to day, and show in a very striking manner the suddenness of the change which took place between January 13 and 14:

January 13, 1888. — "The thickening on the left ventricular band, which marks the seat of the last growth, has almost disappeared. The swelling of both ventricular bands is decidedly less, and that beneath the right vocal cord has disappeared, except at its anterior part, where it still remains to a slight extent. The congestion of the larynx and trachea is less. There is no glandular enlargement."

January 14, 8.30 A. M. — "This morning a whitish-gray prominence has been observed beneath the left vocal cord, narrowing the lumen of the air-passage and producing slight stridor. Temperature, 99·8° Fahrenheit. Pulse, 94."

January 14, 9 P. M. — "During the day there has been a hoarse cough, but unaccompanied with much expectoration. Breath fetid. Temperature, 101·8° Fahrenheit. Pulse, 96."

January 15, 10 A. M. — "This morning the whitish prominence is seen to have increased in size since last night, and to now extend two-thirds across the lumen of the air-passage. The glands on the right side, beneath the jaw, are enlarged. Temperature, 100·8° Fahrenheit. Pulse, 78."

January 15, 9 P. M. — "This evening the whitish-gray substance above referred to is seen to be composed of some soft substance, which moves to and fro with forcible inspiration and expiration. Respiration less interfered with than in the morning. Glandular enlargement somewhat increased. Cough less frequent, but more expectoration. Temperature, 102° Fahrenheit."

January 16, 8.30 A. M.—"Has passed a quiet night. Respiration free. Membrane still adhering to left side, but projecting less into lumen of air-passage. Less fœtor. Temperature, 99·8° Fahrenheit."

January 16, 9 P. M.—"Condition much the same. Temperature, 100° Fahrenheit."

January 17, 9 P. M. —"About five o'clock this morning, after a violent fit of coughing, a slough, about three and a half centimetres in length and one centimetre wide, came out. Temperature, 99° Fahrenheit."

January 18, 9 P. M.—"The expectoration, since the slough came away, has been tinged with blood. Temperature, 99·4° Fahrenheit."

The slough was sent to Prof. Virchow for examination, and the following is that distinguished pathologist's report thereon:

REPORT OF THE EXAMINATION OF THE SLOUGH FROM THE LARYNX OF HIS IMPERIAL HIGHNESS THE CROWN PRINCE OF GERMANY. BY PROF. RUDOLF VIRCHOW.*

"On the morning of January 26, 1888, Dr. Wegner brought me a sealed box, with a letter dated January 23, from Dr. Schrader from San Remo. It was accompanied by a report dated January 17, from Dr. Krause, respecting a large piece of tissue which had been expectorated on the same day from the larynx of His Imperial Highness the Crown Prince.

"The portion sent was the whole of the matter expectorated, with the exception of six small particles removed by Dr. Krause for examination [by Dr. Heryng of Warsaw, then staying at San Remo]† in the fresh state. The piece of tissue was in a sealed bottle containing absolute alcohol. In addition to the large portion referred to, there were also two other separate and somewhat harder pieces — a larger and a smaller. The former, according to Dr. Krause, was originally a part of the principal mass. The examination offered great difficulties, the nature of which could not have been anticipated either from the form or the appearance of the pieces submitted for investigation. The large mass greatly resembled certain portions of imperfectly masticated pieces of meat, which are sometimes rejected in vomiting after being swallowed. This view seemed to derive support from the presence here and there of small, yellow and brownish particles of fine cellular vegetable structure, and from the existence in the innermost portion of the large piece (expectorated) of an abundance of elastic fibres.

"In consideration, however, of the very precise information conveyed by Dr. Krause to the effect that the substance had been observed before its separation (from the larynx) extending from beneath the left ventricular band from the middle to the anterior angle, and also below the glottis, and even round below the anterior part of the right vocal cord, there could be no doubt, on further examination, that we had to deal with a large slough spontaneously separated from the inner surface of the larynx, and not with a purely exudative (fibrinous) mass. In the substance, which, according to the report of Dr. Krause, when first expectorated, measured three and a half centimetres in width, whilst at the thinner end it was half a centimetre in width (its thickness being four millimetres), and at the thicker end one centimetre wide, a small, smooth, semi-circular spot in its long diameter could be seen. All the rest of the surface was occupied by long and very closely arranged fibres. Although there was no epithelium on the smooth spots and no glands beneath it, it cannot be doubted that this was the free surface of the mucous membrane. For beneath it could be seen microscopically a thin layer of almost homogeneous connective tissue and a great mass of elastic fibres. Beneath this there was deeper down a very thick layer, consisting especially of tubules with granular amorphous contents. From this thick layer originated the long fibres observed with the naked eye. It was not once possible to recognize in these tubular layers and transverse stripes, but they seemed to contain only amorphous matter, in which, on more minute examination, numerous micrococci were found. Here and there numerous, but very small, clear blown bodies or crystal-like deposits were observed. Nevertheless, I have no doubt that these tubular layers and fibres are primitive muscular fasciculi, which through a necrotic process have been destroyed. The slough must therefore be regarded as a necrotic and decomposed part of the larynx, which in parts has been separated from the surface to a depth of four millimetres. The very rich muscular structure could only be attributed to the thyro-arytenoid muscle.

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* The above is taken from the *Lancet*, February 18, 1888.

† The sentence between brackets was not contained in the original report.

"I could not determine what kind of morbid process had caused the gangrene, nor what kind of process had produced the demarcation and exfoliation of the substance. Neither pus-corpuscles nor granulation-cells could be distinguished, and, in fact, in most places there was nothing of a heterogeneous nature to be discovered. Only in the larger (of the two smaller pieces), which had been cut off the main mass by Dr. Krause from a somewhat hard spot, and which had the form of a flat wart on section with the naked eye, a central whiter and an external and opaque rather thick covering could be distinguished. In every microscopic section so-called nests (*Zwiebeln*) of epidermoidal cells, for the most part of a homogeneous character, were seen. As a rule, these nest-cells were in the most external layer or in that lying immediately beneath it. The external layer had also most likely consisted of an epidermoidal formation, though these cells could only be here and there partially distinguished. I could not find epidermoidal cells in the deep parts, and distinctly isolated alveoli were nowhere to be discovered, in spite of assiduous researches.

"These examinations will be continued, and if any further result is obtained I will send a report instantly.

"RUDOLF VIRCHOW,
Director of the Pathological Institute,
Berlin."

"*January* 29, 1888.

Prof. Virchow subsequently sent several private letters, in which, however, he did not add anything to the original report as given above, but he stated that he had not been able to find cartilage in any portion of the slough. The notes of Dr. Krause and Mr. Hovell continue as follows:

January 22.—"During the last few days the swelling beneath the right vocal cord has reappeared, but the respiration is not interfered with. There has been but little expectoration during the last twenty-four hours, and no blood is now mixed with the mucus expelled. The glands are still enlarged; the temperature has been normal since last note."

January 25.—"Since the last feverish attack some general swelling has remained beneath the vocal cords, and this has caused the voice to be less clear than it was previously. The upper part of the larynx has been only slightly congested for some time past, and a very slight thickening now only remains to show the seat of the last growth."

The Cause of the Trouble.

This attack was due to the local irritation set up by the presence of the slough which was practically a foreign body in the larynx, and to the systemic disturbance associated with the efforts of the part to get rid of the offending substance. After the extrusion of the fragment of dead tissue the feverish symptoms subsided, and the condition of the larynx became comparatively comfortable. It was obvious, however, that the local disease was entering on a phase of fresh activity, and this naturally made the watchful observers in attendance on the Crown Prince somewhat anxious as to the future. It was therefore decided on January 27, to summon me again.

CHAPTER XX.

SAN REMO — THE TRACHEOTOMY.

Further Developments.

On arriving at San Remo on the afternoon of January 29, I found the Crown Prince looking fairly well, but much thinner. I made a laryngoscopic examination in the presence of Dr. Krause and Mr. Hovell. The growth at the posterior extremity of the left ventricular band had disappeared ; but lower down I saw a red, slightly raised scar, extending parallel with but below the left vocal cord along its whole length. Toward the middle of the cord there was a small patch about three millimetres in length, and one millimetre in depth, which did not appear to be completely healed. Beneath the right vocal cord there was a swelling occupying the middle and anterior portion of the subglottic region.

After the consultation, Dr. Schrader represented to me that Dr. Bramann was anxious to examine the illustrious patient for himself, and asked me to invite him to take part in our consultation the next day. Whilst pointing out that Dr. Bramann was at San Remo, not as one of the attending physicians, but solely for the purpose of performing tracheotomy, should the necessity for that operation arise too suddenly to allow Prof. von Bergmann to be sent for, I said that I was perfectly willing that he should see the Crown Prince if His Imperial Highness did not object. Later in the day, having obtained the consent of the august patient, I called on Dr. Bramann and invited him to be present at the consultation on the following morning. He accordingly came, and I watched him make his examination. It was obvious that he had had little or no experience in the use of the laryngoscope ; but he tried to supplement his imperfect observations with the mirror by *percussion* of the larynx — a mode of examination which has been abandoned by modern physicians as utterly useless.

Inexperienced Laryngoscopists.

I may here take the opportunity of saying, that as nothing is more irritating, even to a healthy throat, than attempts at laryngoscopic examination made by a 'prentice hand, I consider that I should have been amply justified in declining to allow the Crown Prince to be made the subject of such rudimentary efforts. Dr. Landgraf's examinations, as has been said, were sufficiently trying to the illustrious patient, but the throat at that time was comparatively well. When Dr. Bramann used the laryngoscope on the Crown Prince, matters were very different, and it was essential that every cause of irritation to the swollen and ulcerated parts should be as far as possible avoided. It can easily be imagined that the coughing and retching produced by awkward handling of the mirror would be in the highest degree mischievous to the diseased larynx. This is so true that I myself have been, although quite unjustly, blamed for making too frequent examinations. Yet it is now actually made a ground of serious complaint against me, that I tried to prevent the future Emperor of Germany from being made a subject for the experiments of beginners! It was one of the most distressing features in this case that the patient's very importance, from a political point of view, tended to make regard for his personal feelings an altogether secondary consideration with many people. Had he been a private gentleman, I should never have allowed him to be subjected to examinations which could be of no earthly use, and which there is too much reason to fear did positive harm. I may add, that no private patient I have ever met with would have submitted to them.

As according to the reports of Dr. Krause and Mr. Hovell there had not been much change in the local symptoms during the previous two or three days, I took the opportunity of going to Barcelona to see a patient from whom I had received several urgent messages. On my return to San Remo on February 7, I found that the affection had made rapid progress in the interval. The swelling of the left side of the larynx had increased, and there was also marked tumefaction below the right vocal cord. There was now very slight but distinct noise in inspiration, especially when the august patient was talking. In quiet respiration, however, when he was silent, there was no audible sound. On going upstairs to his room in the evening I noticed that he went quite as quickly as formerly; that is to say, quicker than most people, but he was slightly out of breath when he reached the top landing, and I advised him to walk up more slowly in future. I should mention that the rooms on the ground floor were very lofty, so that the ascent up the stairs was considerable. On inquiry, I found that the Prince was still sleeping with only one pillow under his head, and I recommended him to use one or two more pillows. This will show how very slight the difficulty of breathing was. The illustrious patient complained of headache, which Dr. Schrader attributed to want of oxygen—commencing asphyxia in fact! I prescribed a nerve sedative, which quickly relieved the neuralgia.

Urgent Symptoms.

On the morning of the 8th we found that His Imperial Highness had not had a very good night; the breathing was about the same. At the evening visit the illustrious patient said he felt very well. I sent word to Dr. Bramann that I should be glad if he would take part in the consultation the next morning. On the 9th we found that the Crown Prince's rest had been much broken by fits of coughing, but he said he felt very well in spite of having had a bad night. On making a laryngoscopic examination, I found that the whole of the left side of the larynx down to the level of the left vocal cord below the epiglottis was very much swollen and inflamed. During deep inspiration the subglottic region on the right side was seen to be very red and swollen; in fact the mucous membrane in this situation formed a distinct broad-based tumor about five-eighths of an inch in diameter, which considerably diminished the lumen of the lower part of the larynx. After we left, the illustrious patient had breakfast, and ordered the carriage for a drive at ten o'clock. He stepped briskly into his carriage, and was much disappointed when he heard that a mistake had been made in bringing it round, and that I had left directions that it would be better for him not to go out.

Tracheotomy decided on.

After seeing the Crown Prince we proceeded to discuss the situation. The disease had burst into renewed activity so suddenly, and the swelling had encroached on the breath-way to so great an extent in the course of a single night, that I thought there would be the gravest risk in postponing the establishment of an artificial passage even for twenty-four hours. I therefore urged that tracheotomy should be performed at once. In this I was supported by Dr. Krause and Mr. Hovell, who of course were in a position to estimate the pressing nature of the case. Dr. Bramann, who from inexperience in this particular department could not realize the condition, was strongly in favor of postponing the operation till Prof. von Bergmann could arrive. Dr. Schrader, who, even before I left for Spain, was anxious that tracheotomy should be done, and who on my return from that country pressed for the performance of the operation without delay, now most anxiously pleaded that we should wait till Bergmann arrived. He said, "It would make a very bad impression at Berlin if the operation were done by any one else than Bergmann," and seemed to fear that he would get into disgrace if the arrival of that surgeon was not awaited. So strong a sense, however, had I of the danger of delay that I felt compelled to say plainly that if the operation were postponed I should decline all further responsibility, and that those who opposed its performance would be answerable for the Crown Prince's life. On this Schrader and Bramann gave way, begging, however, that ice-compresses should be applied to the neck for three or four hours in order to see if the inflammation showed any tendency to subside. I consented to this, and immediately after our consultation I paid a visit to the Crown Prince, and ordered the ice-compresses, but told him that I was afraid that tracheotomy would have to be performed in a few hours. He said, "I feel perfectly well, if it were not for the slight difficulty in breathing; but if you say the operation must be done, I have no objection." Soon after twelve o'clock, having noticed that the difficulty of breathing was increasing, I informed Dr. Bramann that I thought it would not be safe to put off the operation much longer, and advised him to visit the illustrious patient again. After he had done so he proceeded to make arrangements for the operation, which was fixed for 3 P. M.

Shortly before that hour we all assembled at the Villa Zirio, and there was some debate as to whether chloroform should be administered. I am myself opposed to the use of this anæsthetic in such cases, as I think it increases the danger of the operation, and the pain of the incision can be almost entirely deadened by freezing the skin. Occasionally, in the case of a very nervous patient, I have found it necessary to administer laughing-gas, followed by ether, but I never use chloroform. Dr. Schrader, however, explained to me that as Bramann had never performed tracheotomy without chloroform, it would try his nerve very severely to dispense with it in such a case as the present. I therefore urged the Crown Prince to consent to be anæsthetized, and, after discussing the matter at some length, His Imperial Highness said, "If you approve of it, Sir Morell, I will take chloroform."

The Operation.

When everything was ready, the Crown Prince passed through an adjoining room into his ordinary sitting-room, where it was arranged that the operation should be performed. The bed was placed opposite one of the windows, so that there was an excellent light. Bramann proceeded to give chloroform, but as soon as the Crown Prince had become unconscious, the administration was continued by Dr. Krause, whilst I kept my finger on the pulse at the left wrist. Shortly after Dr. Bramann had made his first incision, I noticed that the pulse had become very weak, and that the face was blanched; in fact there were evident signs of cardiac weakness. On raising the eyelid the pupil was seen to be widely dilated. The chloroform was suspended for a minute or two, when the pulse became fairly good again, and the operation was proceeded with. After this incident Dr. Bramann seemed to become a little flurried, though not to such an extent as to prevent him from operating with skill. In opening the windpipe, however, I noticed that he made his incision a little to the right instead of in the middle line. The deviation appeared to me so slight at the time that I attached no importance to it. After opening the trachea, instead of at once plunging in the canula as is usually done by English surgeons, Bramann held aside the two sides of the wound for a minute or two until the bleeding had ceased, and then inserted a very large and long tube. I will frankly own that the delay in introducing the canula seemed to me an improvement on the ordinary plan of plunging the tube into the windpipe as soon as it is opened — a proceeding which usually sets up severe spasm and cough.

When the operation was completed I congratulated Dr. Bramann on his success. I have already said that in a case like that of the Crown Prince tracheotomy is not, as a rule, a matter of any difficulty, but considering that the young surgeon was operating on his future sovereign, and that he was not unnaturally somewhat unnerved by the catastrophe so nearly caused by the chloroform, I think he did his work very well. On leaving the room, I said to Mr. Hovell, "Did you notice that the trachea was opened a little to the right of the middle line," and that gentleman replied, "I did; but I should say *considerably*, rather than *a little*."* On coming to himself the illustrious patient shook hands warmly with Dr. Bramann, myself, and, I believe, the other doctors.

As the case here enters on a phase of the highest importance, and as the various episodes must be related in detail in order to make the general situation intelligible, I propose to continue the narrative in the form of a daily record. The facts were all duly recorded in my note-book at the time, and the following pages are little more than a reproduction of my notes, with a running commentary to make their purport clear to ordinary readers. From the

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*I should have been glad to have avoided this subject, had it been possible, but unfortunately soon after the operation took place, the fact that the opening was made to the right of the median line was mentioned in the *British Medical Journal*, and is referred to at considerable length by the writers of the pamphlet entitled "Die Krankheit der Kaiser Friedrich des Dritten." When I first saw the statement in the *British Medical Journal*, both I and my colleague, Mr. Mark Hovell, were much surprised, and greatly regretted that the facts had got into print. I am permitted by Mr. Hovell to state that, on sifting the matter, he ascertained that the account got inserted in the following way: Mr Mark Hovell wrote a description of the operation to his lamented father, not intending it to be made use of in the press. Unfortunately Mr. Hovell, Sr., described the details to a gentleman connected with the *British Medical Journal*, but I am quite sure that he had no idea that the facts described by him would be published.

day of operation till the Emperor's death I was never away from him for more than a few hours.

Dr. Bramann's Canula.

February 9.— I was very anxious when I saw the kind of canula that Dr. Bramann had inserted into the trachea; it was very large, and also the longest tube I had ever seen inserted, immediately after the performance of tracheotomy. It is true that in certain cases where disease creeps down the trachea longer tubes have to be inserted from time to time, but I have never seen a case in which so long a tube was used from the first. Besides its unusual size and length, its upper orifice was considerably larger than the lower, so that it had somewhat the shape of a funnel. Any practical surgeon looking at the annexed drawing (Fig. 7), which was actually traced from the tube used, will see that the instrument was exceptional in every respect, and widely differing from the ordinary full-sized canula (Fig. 8), was eminently calculated to cause irritation of the tra-

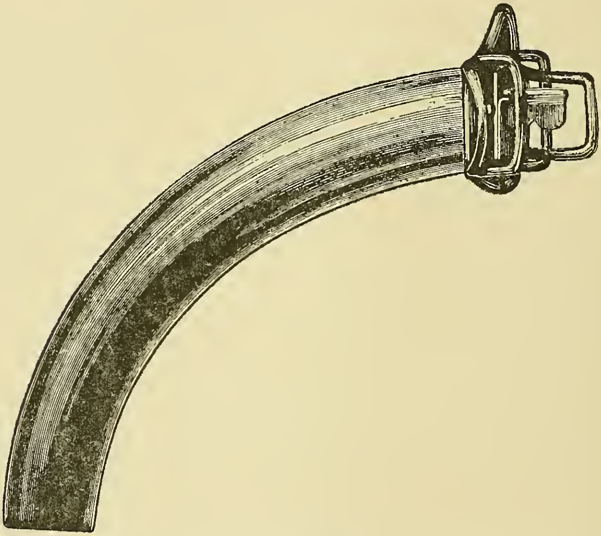

Fig. 7.— Bramann's canula; from a tracing of the original instrument. On comparing it with Fig. 8, which is the drawing of an ordinary full-sized canula, the extraordinary size and curve of Bramann's tube will be at once evident.

chea; and it will be seen how the lower and back part of the instrument caused a wound in the posterior wall of the trachea by pressing on that point.

February 10.— The Crown Prince had a disturbed night, and there was a small amount of mucus with cough about every two hours, sometimes oftener. The mucus was thin and pink, as is generally the case directly after tracheotomy. This results from a little blood oozing from the wound trickling down into the windpipe, from which it is ultimately coughed up. Considering that the operation had only been performed the day before, I thought the illustrious patient's appetite tolerably good.

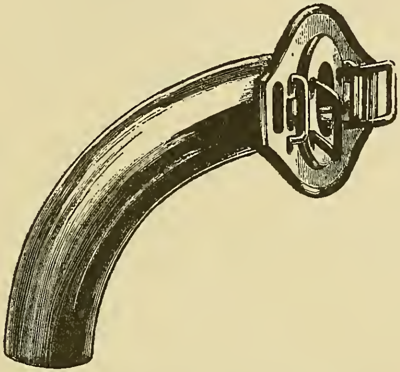

Fig. 8.— An ordinary full-sized canula, from a tracing.

There were now six medical attendants to look after the Crown Prince, and for some time after the operation each of us took his turn at the Prince's bedside. I came on duty at six o'clock every evening and remained until ten; and though I was not now in charge of the case I paid frequent visits to His Imperial Highness during the day.

My Report on the Case.

February 10.— This evening the illustrious patient expressed a wish that I should issue another official report on his case. I at once set about drawing it up, and two days later forwarded it to the principal German and English medical papers. It will be seen that it is a *précis* of much that has been stated in these pages, but it may perhaps be considered to have a certain historic value. From my

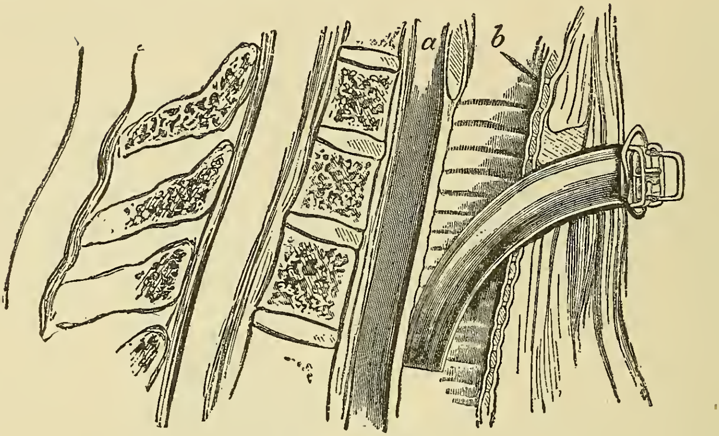

Fig. 9.—Diagram, showing Bramann's canula (half size) *in situ*. *a*, the gullet; *b*, the larynx with the trachea below. The canula is seen cutting into the back wall of the trachea as occurred in life.

own point of view, it is of some importance, inasmuch as some months before the fatal issue of the case, it clearly defined my position in the spring and summer of 1887.

THE CASE OF HIS IMPERIAL HIGHNESS THE CROWN PRINCE OF GERMANY.* BY SIR MORELL MACKENZIE.

"His Imperial Highness the Crown Prince of Germany having expressed his wish that I should now place on record my opinion of his case, the opportunity is afforded of correcting some of the statements which from time to time have been inaccurately attributed to me.

The general idea is that I am of opinion that the disease from which his Imperial Highness is suffering is not cancer; † the view, on the other hand, which I have consistently maintained, is that there never has been any proof of the existence of cancer. To enter more into detail: When I arrived in Berlin last May I stated to my colleagues that, in my opinion, the appearances seen in the throat were of a negative character — that is to say, that the disease might be either benign or malignant, and that its nature could only be determined by microscopical examination. A portion of the diseased tissue having been taken away by me from the throat of his Imperial Highness, it was submitted to Prof. Virchow, who could not detect in it anything of a malignant nature. Repeated examinations by Prof. Virchow of other portions removed by me yielded similar results.

In the month of July, whilst His Imperial Highness was staying in the Isle of Wight, I pointed out to more than one of his august relatives that the danger that I most dreaded was the occurrence of perichondritis at a future date, and three months later this fear was proved to be well grounded. At the end of October and early part of November entirely fresh symptoms appeared, and at that time the local disease presented an appearance which was consistent with the diagnosis of cancer. It was then impossible to obtain any fresh microscopical evidence in the matter, and I considered it safer accordingly to treat the case as one of a malignant nature. At the same time, however, I drew up and submitted to my colleagues a protocol, in which I stated that although the disease at that moment looked like cancer, I could not agree that the malady was proved to be malignant until a further microscopical examination had been made. The document in which I set forth my views was forwarded to Berlin to be placed in the State Archives. Although the unfavorable symptoms then present were explicable on the ground of the existence of cancer, yet it was clear to the majority of the physicians at that time in attendance that perichondritis had supervened.

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* This report is taken from the *Lancet*, February 18, 1888.

† In this statement the words "cancer," "cancerous," and "malignant," are used synonymously.

In the middle of December, however, the unfavorable signs had passed away, and there were no longer any clinical symptoms of cancer. Microscopical evidence on the subject was, however, still wanting. This was furnished at the end of January, when a slough was expectorated from the very spot which had presented such a highly suspicious appearance in November. This slough was most carefully and repeatedly examined by Prof. Virchow, and the result (which is now published) again shows that cancer could not be detected.

To recapitulate. In my opinion, the clinical symptoms have always been entirely compatible with non-malignant disease, and the microscopical signs have been in harmony with this view. I need only add that, although in nearly every case of laryngeal disease it is possible at the first inspection to form an accurate opinion as to the nature of the disease presenting itself, yet in a few rare instances the progress of the complaint alone permits its character to be determined. Unfortunately, the case of His Imperial Highness is among the latter number, and at this moment medical science does not permit me to affirm that any other disease is present than chronic interstitial inflammation of the larynx combined with perichondritis.

San Remo, February 12, 1888."

At the date of that report there was still no conclusive evidence of cancer, but the microscopic proof, that had hitherto been wanting, was only too soon to be supplied. This, however, will be told in its proper place.

The Canula gives Trouble.

February 11.—The Crown Prince, who had at first been pleased with the results of the operation, now began to show signs of disappointment that he had not derived more benefit from it. He had several very violent fits of coughing, especially whilst trying to drink. I explained to him that this was a common symptom immediately after tracheotomy, which I hoped would disappear in a day or two. There was now a large amount of slimy expectoration streaked with blood. Prof. von Bergmann arrived this morning, and immediately presented himself to the Crown Prince. The professor joined us in a general consultation in the evening. At this time the illustrious patient's temperature was 100° Fahrenheit and the pulse 94; that is to say, there was slight fever, due, no doubt, to the tracheal inflammation set up by the canula. My German colleagues, however, would not allow that a temperature of 100° Fahrenheit indicated fever. His Imperial Highness sat up for three hours.

February 12.—The Crown Prince complained very much of irritation in the windpipe, and asked if a different tube could not be inserted. The fits of coughing were much more frequent and severe, and prolonged paroxysms occurred even when no food or drink had been taken.

I Explain my Views to Bramann.

During the morning Dr. Bramann paid me a visit at my hotel, and showed me two other tubes, both curved, and more or less resembling the one already in use. I told him that I thought neither of these tubes would answer, and I pointed out to him that the large orifice of his canulas would be likely to crush the rings of the trachea with which it would come in contact, and in this way in course of time cause destructive action of a serious nature. Dr. Bramann said that the orifice of the tube was made large in order to facilitate the expulsion of the mucus. To this I replied that as regards coughing, the power of expulsion would be diminished by having the tube much larger at one end than the other, as the draught would thereby be diminished. Finally, I said that I considered his instruments antiquated (*uralt*), whereupon Dr. Bramann left the room, apparently much offended. When I subsequently went to Berlin and visited the instrument makers' shops, I found that the tubes which I had supposed to be antiquated had been specially made for the august patient; that the large curve, the big instrument, and the large orifice were all specially designed for the benefit of His Imperial Highness. Whilst I regretted very much having regarded Dr. Bramann's instruments as antiquated, I could not help feeling that this was scarcely a case in which it was desirable to try an experiment with a new kind of canula, and it would have been better for Dr. Bramann, though he had, no doubt, acted with the best intentions, to have used a tube which experience had proved to be useful.

Suggestions from the Outside World.

At this time the immense interest taken in the case throughout the civilized world led to my receiving innumerable letters recommending all sorts of remedies. For weeks after the tracheotomy they continued to pour in from all parts of Europe, and also from America. A kind of compress of live worms in a muslin bag was, according to many of these good people, the sov'ran'st thing on earth in such a case as that of the Crown Prince. A great variety of prepared foods, peptonized preparations, essence of beef, and zyminized nutriments, were brought under my notice. Cocoa pure and cocoa modified, peptonized and converted into an "elect extract," was enthusiastically recommended. Malt extracts under various names, and in combination with both meat and cocoa, were much vaunted, whilst my friends in Scotland gravely assured me that if Highland whisky and oatmeal did not actually effect a cure, they would at any rate prolong life to its utmost limit. Mineral waters of every kind and from every place were sent in large quantities, and medicines of every description constantly reached me. Medical practitioners in different parts of Europe were also good enough to advise particular remedies. From England calcined oyster-shells had the most convincing vouchers; and, if human testimony is to be accepted, this remedy must have cured several cases of undoubted cancer. From France carbolic acid was the remedy most strongly urged upon me, both as a local injection and as an internal remedy; whilst Dr. Bergeon's treatment was pressed upon me by several French physicians of eminence, who assured me that they had known cases exactly like that of the Crown Prince which had been cured by this method. The remedy most persistently recommended to me, however, was the quack medicine of Count Mattei, whose nostrums many persons in a high position of life most earnestly begged me to try. Dr. Schrader received from Germany large quanties of similar advertisements, which he informed me he forwarded regularly to Berlin, in order that they might be placed in the State Archives of the Haus-Ministerium. I was besought to use massage by dozens of people, and enterprising professors of that art offered to come at once from London, Paris, and even St. Petersburg, to exercise their skill.

Turkish baths were pressed on my attention by philanthropic proprietors as an infallible means of purifying the body of every species of germs. Miraculous waters were sent by devout Catholics; even magic was recommended. A lady earnestly entreated me to set on a table at the foot of the Crown Prince's bed "an oil lamp in which some water and salt had been placed." This lamp was to be lighted when the illustrious patient was asleep, and a small talisman (which was obligingly forwarded to me) was to be placed on His Imperial Highness's breast-bone when he was asleep. I was assured that if this was done the Prince would immediately begin to speak in his sleep, and would not only explain the nature of his malady but indicate the means of curing it. The talisman consisted of two circular pieces of linen stitched together round the edges; on cutting it open the precious phylactery was found to be nothing more than a piece of common flannel! On my mentioning this thaumaturgic suggestion to the Crown Prince he smiled and said, "It is very kind of the lady, but I prefer to do without it." I may here say that even strong-minded persons, who know that they are suffering from hopeless diseases, often surprise their physicians by seeking help from the most stupid quackery as a drowning man grasps at a straw. The absolute freedom of the Crown Prince from weakness or superstition of this kind was not the least remarkable of his many admirable qualities.

I am Prevented from Giving Relief.

February 14.—Though my colleagues thought the discharge from the trachea "moderate," it was more abundant than I liked to see, and it was much streaked with blood. I was now convinced that the lower end of the canula was pressing on the back wall of the windpipe and giving rise to tracheitis, and I asked to be allowed to introduce a short rectangular tube. I pointed out that when the tracheotomy wound healed it would be difficult to use my tube, *as owing to the very long curve of the German tube mine would probably not adapt itself to the track made by that instrument*, and in this way if the insertion of the rectangular tube were delayed too long it would itself cause similar irritation in a different part of the windpipe. Prof. von Bergmann would not, however, agree to my proposition.

February 15.—The Crown Prince had a bad night, coughing almost incessantly; the discharge was more copious, and contained blood, matter and mucus, with here and there small black shreds of tissue undergoing decomposition. It appeared as if the violent coughing was beginning to break down the diseased mass within the larynx. I was now getting very anxious, not so much about the progress of the disease, as about the way in which the after-treatment of the operation was being mismanaged, and again begged to be allowed to insert a rectangular tube.

My Experience in Similar Cases.

It certainly appeared to me that neither Prof. von Bergmann nor Dr. Bramann, well-informed surgeons though they doubtless were in many matters, had had much experience in the sort of work they had now taken upon themselves to do. Dr. Schrader told me that Bramann had performed tracheotomy four hundred times, but all these operations were cases so utterly unlike the present one that it would be simply misleading to class them together. Bramann's previous tracheotomies had nearly all been performed on infants and young children for acute obstruction of the larynx, as in diphtheria. The large majority of these cases die soon after the operation, many indeed under the knife; whilst in those who survive, the tube is dispensed with after a short time. The case is altogether different in an adult, whose larynx is blocked up by new growth, which has a tendency to spread in the direction of greatest irritation. Here the parts require the most careful handling, and it is of the utmost importance to avoid anything that may lead to the larynx being shaken by coughing. Though my own experience of tracheotomy had not been so extensive as that of Dr. Bramann, yet my experience of the particular kind of case with which we were now dealing was far larger than his. Up to the year 1880 I had performed tracheotomy seventy-three times, sixty-four of these operations having been done on adults, and nine on children. In addition to this personal experience I had also been present at many operations performed on my patients by eminent surgeons, and I had often assisted my colleagues at the Throat Hospital in their operations. Since 1880 Mr. Hovell has performed most of my operations in private practice, and has also attended the patients for a week or two after the operation under my general superintendence. At the very lowest computation I have certainly been present at 120 operatons. In the bulk of these cases the patients were adults suffering from diseases of a chronic nature. Many of them were cured, and the rest nearly all survived for some months. Thus, with a much smaller total of operations than Dr. Bramann, I had had a far greater number in which careful after-treatment was required. Prof. von Bergmann does not, I believe, profess to have any large experience as regards the operation of tracheotomy in adults.

The Crown Prince attended to business to-day and walked up and down his room for a considerable time, both in the morning and the afternoon. He complained, however, of a neuralgic headache.

February 16. — The condition was still most unsatisfactory; the bloody mucus was more abundant than ever. His Imperial Highness scarcely slept at all, either day or night, being awakened every half hour by fits of coughing. In spite of this, he was gaining strength a little.

On this day Dr. Krause called on me, and invited me on behalf of von Bergmann to look at some microscopic preparations of minute sloughs thrown out in the expectoration. Dr. Krause said that he himself had examined them, and was satisfied they were of a cancerous nature, owing to the very large number of nest-cells which they contained. I told Dr. Krause that I did not profess to be a microscopist, and that so much depended on the situation of the "nests," and their relation to other tissues, that I did not feel myself competent to judge in the matter. In a case of such vast importance, I thought the decision ought to be left to a pathologist of the first rank.

My Examinations Objected to.

February 17. — The Crown Prince again had a disturbed night; the cough was very harassing, and the bloody secretion abundant. I made a laryngoscopic examination, and found that the laryngeal canal was more open, and on closing the tube His Imperial Highness was able to sound his voice very fairly. He did not, however, at all like the tone of it. There was not a trace of blood in the larynx, which proved that the blood in the expectoration came from elsewhere.

February 18. — Another very bad night. The headache, however, had yielded to the remedy which usually gave relief. I announced to my colleagues that I found the condition of the larynx, relatively speaking, very satisfactory. In the evening Prof. von Bergmann stated at our consultation that my laryngoscopic examination on the previous day had been the subject of serious consideration by himself, Dr. Bramann, and Dr. Schrader, and these gentlemen had requested him to say that they considered my having made such an examination in their absence a breach of professional etiquette. I answered that I did not think examining the throat any more of an operation than feeling the pulse or looking at the tongue, both of which I presumed they occasionally did when they were on duty; and I added that I should not have the slightest objection to either of those gentlemen making a laryngoscopic examination, if he could do so without inconvenience to the Crown Prince. As the matter was not worth making a fuss about, however, I promised for the future to give each of my colleagues formal notice whenever I proposed to make a laryngoscopic examination.

Bergmann suspects Cancer of the Lungs.

Although the illustrious patient's temperature was never much above the normal standard, we frequently examined the lungs, and on this day (19th) Prof. von Bergmann, after carefully percussing the right side of the back over the lower ribs, said he feared there was a secondary development of cancer in the base of the right lung, and that this was the cause of the hemorrhage. The professor did not seem to be aware that the dulness on which this diagnosis was founded was caused by the liver which occupied its ordinary situation over which he had been percussing. I pointed out to him, moreover, that such a condition as he believed to exist was most unlikely to occur under the circumstances without some accompanying pneumonia, of which there was no trace. In thus seeking another cause for the hemorrhage Prof. von Bergmann showed that he had abandoned his previous theory that the bloody discharge all came from the larynx. The position which I maintained at this time was as follows: The tracheotomy tube had caused great irritation as shown by muco-purulent and bloody discharge, and by frequent and violent coughing. This coughing after a time caused ulceration and disintegration of the morbid formation in the larynx, and the blood which at first had come solely from the trachea, rasped and wounded by the ill-fitting tube, now came from both trachea and larynx.

My Tube is Tried Too Late.

February 20.—On this day Prof. von Bergmann permitted me to insert a right-angle tube. Unfortunately, however, owing to the shape of the wound which the other instrument had made, it could not rest in a horizontal position, but was considerably lower at the inner end where it passed into the trachea than at the outer orifice. (See Fig. 10.) Although there was no longer any pressure from the posterior wall, I was sure that my tube would irritate the front part of the windpipe. This is what actually occurred, as indeed I had predicted on the 14th of February would be the case, if I was prevented from inserting the tube for some days.

February 21.—The Crown Prince was exceedingly comfortable in the morning. He had slept well during the night, but toward the afternoon the tube was already beginning to chafe the anterior wall, and in the evening I found it causing almost as much irritation as the one it had replaced. During the day the Crown Prince had rather a long conversation with the Prince of Wales, who had arrived the day previously.

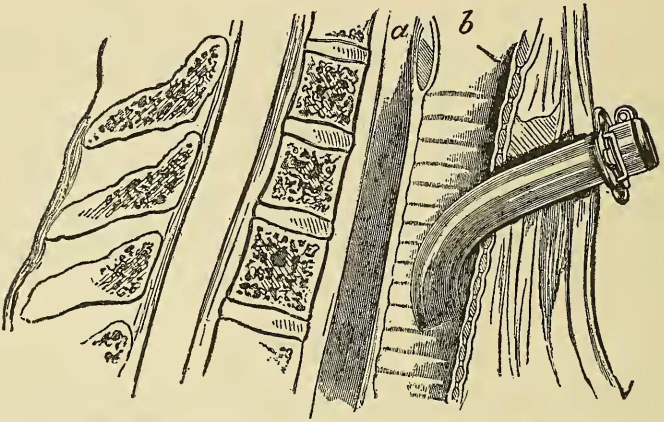

Fig. 10.— Diagram showing Durham's tube introduced too late, and not able to adapt itself to the track of the long German canula. Later on, this tube was worn (see Fig. 16) with comfort. It can be seen that the front part of the lower end of the canula is very near the anterior wall of the trachea, and that by the least coughing it would be sure to rub against the delicate lining of that tube.

In the evening the Crown Prince also had an interview with the Grand Duke and Duchess of Baden; notwithstanding that the Prince had done more talking than usual he did not seem at all tired in the evening.

Professor Kussmaul Summoned.

February 22.— The Crown Princess informed me that Prof. von Bergmann had told her that he was quite sure the Crown Prince had cancer of the lungs, and that he should like to have the opinion of Prof. Kussmaul of Strasburg. I said I thought this was quite unnecessary, as I had examined the lungs carefully myself, and I was quite sure that there was no deposit in either of them. Two days later Her Imperial Highness again mentioned the subject to me, and said she thought it would do no harm for Kussmaul to see the Prince. Of course I replied that if Her Imperial Highness wished it, I had nothing further to say. Subsequently Prof. von Bergmann brought the matter forward at a consultation. I then said that I should have no objection to Prof. Kussmaul examining the Crown Prince's lungs, but as that gentleman was neither a laryngoscopist nor a microscopist, I could not consent to receive his opinion as to the nature of the laryngeal affection.

On this day von Bergmann told the Crown Princess and Count Radolinski that the hemorrhage from which the Prince was suffering would never cease — that it was in fact the beginning of the end. The Crown Princess sent for me to tell me this. I stated my belief that by proper management of the tube, when the case was again placed entirely in my hands, I should be able to stop the bleeding, although it had now become so considerable that I feared that under the most favorable circumstances it would probably take several weeks to bring about the healing of the ulcers which Bramann's canula had caused. Bramann told me this morning in a triumphant sort of way that he had found a great number of cell-nests in the sputum, which could only come from a cancerous growth. Schrader gave me the same information in the evening, but without the same scientific enthusiasm.

Out for the First Time.

February 23.— The Crown Prince had had a bad night, but in spite of this he said he felt better, and the day being fine he passed half an hour out on the balcony. A large number of people assembled opposite the villa, and greeted the illustrious patient with cheers, salutations, waving of handkerchiefs, etc., which appeared to give him much pleasure. It had been arranged between Prof. von Bergmann and myself that I should now resume charge of the case, but Bramann, having requested me to leave the case in his hands a short time, as he felt confident he could stop the hemorrhage if he were allowed to manage things in his own way for a few days longer, I yielded to his request. The right-angled tube which was irritating the anterior wall was taken out, and one of von Bergmann's was substituted for it. It was subsequently proved by measurements made by Mr. Hovell, that one of the reasons, and perhaps the principal one, why the right-angled tube could not be worn, was, that the windpipe, as already said, had been opened to the right of the middle line. (See p. 178.)

Schrader's Misadventure with the Tube.

During the previous night, Dr. Schrader, who was unfamiliar with the construction of Durham's tracheotomy canula, which was then being tried, loosened the screw by which the tube is fixed to its shield, thereby causing great irritation in the trachea. After he had been vainly trying for some time to put things right again the Crown Prince wrote on a slip of paper, "Send for Hovell." That gentleman soon made the illustrious patient comfortable.*

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* This incident was mentioned in several of the French and Italian papers a couple of days later, and Dr. Schrader was very indignant with Mr. Hovell and myself for having, as he thought, made the matter public. The fact was, however, that the whole story was known throughout San Remo the very next morning, A lady confined to her bed in one of the hotels told Dr. Freeman, the popular English physician at San Remo, all about it a few hours after it happened. She had learned it from a charwoman, who, after doing some rough work at the Villa Zirio in the morning, used to

Hovell Threatened with Imprisonment.

I may mention here that I constantly received messages from Prof. Bergmann through Dr. Schrader as to the necessity of carrying out the treatment *antiseptically*. This meant dipping the inner canula into a weak solution of carbolic acid and water instead of cleaning it with plain water. On one occasion Schrader asked me to tell Hovell (as the latter did not speak German) that surgeons who did not carry out treatment antiseptically were liable to serious punishment in Germany, and that recently a surgeon had been sentenced to three months' imprisonment for neglecting to use antiseptic treatment in a case of compound fracture of the arm. I pointed out to Schrader that in the after-treatment of tracheotomy the use of antiseptics was of little importance, cleanliness being all that was required. I said that of course in the case of a wound from which, by the use of antiseptics, germs could be excluded, that method was of the utmost utility; but in the case of a canula worn in the throat, and necessarily open to the air of the room, the antiseptic method could not be applied. He answered that it was Prof. von Bergmann's wish that Mr. Hovell should have these directions. It appeared to me that the professor of surgery, in the matter of antisepticism, attended to the letter rather than to the spirit, and whilst insisting on minute observances connected with the instruments—observances which had been discarded by the inventor of the system himself—he did not always perhaps pay sufficient regard to personal cleanliness. I afterward told the Crown Prince that I had been requested to inform Hovell that he would run the risk of spending three months in prison if he did not use carbolic acid freely. His Imperial Highness answered with a smile, "If Mr. Hovell is sent to prison, I shall have to go there too."

February 24.—The Crown Prince had a fair night, though the first part of it was disturbed by coughing. The removal of Dr. Bramann's tube for a few days seemed to have relieved the inflamed part, so that when it was introduced it did not at first cause so much irritation as before. His Imperial Highness was much depressed during the day by the news of the sudden death of his nephew, Prince Ludwig of Baden. On this day I learned from two independent sources in Berlin, that von Bergmann was sending home most alarming letters announcing that the Crown Prince could not live for more than a fortnight, and that on the strength of these messages many noble families connected with the Court were getting mourn-

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spend the rest of the day at the Hotel des Anglais. The news which this woman learned in the morning was all over the town in the afternoon. In such ways, many reports, some true and some false, got into the newspapers, and thus the wrong persons were frequently blamed for giving news to the press.

ing prepared. I was considerably surprised that a surgeon of any experience should commit himself to a gratuitous prophecy which there was absolutely nothing in the aspect of the case at that time to suggest.

The Crown Prince's Dislike of Stimulants.

I now used to have a good deal of conversation with the illustrious patient. I always sat with him at his dinner, or, as it was called, supper, and I generally spent half an hour with him whilst he was eating his mid-day meal. I may here mention that the illustrious patient's appetite was by no means good, and that he had a great dislike of stimulants. He always mixed his wine with water, and so little did he care for the flavor of wine, that he always took a sip of plain water after drinking it. In reply to a question which I ventured to put to him on the subject, he said that he preferred being talked to when he was taking his meals, adding that he was sure he ate much more heartily when I was with him than when he was alone. After this I used to have most interesting conversations with the Crown Prince, who had traveled a great deal, and as I had done the same, we were able to compare our experiences. He was always pleased, too, when I asked about events in the history of the House of Hohenzollern, and especially about anything connected with Frederick the Great. He was also good enough to answer many questions as to his campaigns, and if I did not understand him quickly the Prince never minded taking any trouble in writing what he wished to say.

Dr. Bramann told me to-night that nest-cells had again been found in the discharge.

February 25.—The august patient passed a bad night; his digestion was also much disturbed. The large, long tube had again set up considerable inflammation in the windpipe.

Different Kinds of Canulas Suggested.

At about this time I received numerous suggestions from surgeons in England with regard to tracheotomy tubes, and, indeed, both at that time and later on at Charlottenburg, after the Bergmann catastrophe, many members of the profession in different parts of the world were kind enough to place the result of their experience at my disposal. One of our greatest English surgeons not only wrote to me, but most kindly sent me apparatus to facilitate the after-treatment of tracheotomy. The laity, especially engineers, were fertile in suggestions for warming the air before it passed through the canula. The number of tracheotomy tubes that I received was quite remarkable, many of them being from patients who had been operated on and who were themselves wearing tubes.

Here I may mention that while I was at Charlottenburg, a French gentleman took the trouble to travel all the way from Paris to deliver a canula to me personally, and to explain the special advantages which it possessed.

Bergmann's Reports Again.

On this day I received a letter from Berlin begging for my "candid opinion" as to the condition of the Crown Prince. The writer gave as his reason for asking the question that Bergmann had sent word to Berlin that the illustrious patient was not likely to live more than a week, and might die "in four days"! When I went to Berlin in March I found the statements of my correspondent confirmed from unimpeachable sources. It is quite clear, therefore, that in the last week of February, Prof. von Bergmann believed the end to be very near. Whether this idea was based on his erroneous supposition that the lungs had been attacked by cancer, and that fatal hemorrhage was likely to take place suddenly, or whether he had any other ground for the prediction, I cannot say.

I Propose a New Tube.

February 26.—The Crown Prince passed a bad night, and Bramann's efforts to stop the bleeding proving quite ineffectual, I asked to be allowed to insert a new tube made in San Remo of the same shape as the one then in use, as far as regards the portion of the canula lying external to the trachea, but so constructed that, instead of passing a long way down the trachea, it would only just enter that tube. My colleagues, however, would not consent to this; first, because they considered the lumen of my new instrument too small (though it was nine millimetres in diameter), and secondly, because it had not an inner tube. This tube would have relieved the august patient's sufferings at once, as it was too short to chafe the back wall of the windpipe, which was the source of all the trouble with the other. Even if a somewhat smaller quantity of air had been supplied to the lungs, would not the cessation of the coughing and bleeding which prevented the Prince from sleeping have been an ample compensation for such a drawback, which after all was more or less theoretical? With regard to the absence of an inner tube, such an objection could have been inspired only by the narrowest surgical pedantry or some less worthy feeling. My improvized tube was of course only intended as a temporary contrivance to be used till a more perfect one could be obtained; if it had been found to answer, a double tube could then have been made to pattern. I may add, moreover, that as a matter of fact double tubes are a comparatively modern invention, and there are at the present moment hundreds of persons wearing single tubes.

Prof. Bergmann, however, went so far as to tell the Crown Princess that with a single tube there would be the greatest danger of the Prince being suffocated when the tube was taken out for a few seconds to be cleaned. With the most docile and intelligent of patients, who had six medical men about him, one or the other of whom was always in attendance, it is ridiculous to suppose that there could have been any risk in using a single tube for a few days. Such, however, were the grounds on which I was prevented from affording much-needed relief to the Crown Prince, whose strength was being worn out by constant suffering.

On this day Prof. Kussmaul arrived and took part in the consultation this morning. I was not present, as before meeting him, I wished to have his position in the case clearly defined. I was willing, of course, to receive his opinion on the state of the chest, but not as to the larynx, as I did not know that he had any experience in the affections of that organ. There had, I considered, already been more than enough of such examinations by men whose observations could be of no possible value. After making this protest on the question of principle, I expressed my willingness to meet Prof. Kussmaul as a matter of courtesy. Later in the day that distinguished physician himself called on me, and whilst acknowledging that he was not very skilful with the laryngoscope, intimated a wish to see what he could of the illustrious patient's throat.

Kussmaul's Adventures as a Laryngoscopist.

February 27.—We all met together for the usual consultation in the morning, Prof. Kussmaul being present as arranged. After making a general examination, Dr. Kussmaul proceeded to inspect the larynx. For this purpose he placed the Crown Prince opposite the window (though far back in the room), a position in which, when artificial light is used, it is very difficult to obtain a good view. Seeing that the illustrious professor was quite unaccustomed to make a laryngoscopical examination, I arranged the lamp in a suitable position, placed the chair differently, warmed the laryngeal mirror for him, and assisted him as far as possible. After a long time he managed to throw a feeble ray of light on to the mirror, but evidently did not obtain any view of the interior of the larynx. On returning into the next room Prof. Kussmaul observed that what he had seen reminded him, not of any cases he had previously examined, but of a picture of a case of cancer that he had seen in von Burow's Atlas! As it was quite impossible to see into the interior of the larynx, the swelling of the ary-epiglottic folds completely obstructing the field of vision lower down, the value of the professor's souvenirs may be gauged. I see from Prof. Kussmaul's report in the German pamphlet that he was subsequently instructed, and now acknowledges that he only saw the swelling of the arytenoid cartilages. It seemed to me strange that a man justly distinguished for his great knowledge and experience as a general physician should condescend to go through the form of making an examination with the *technique* of which he was clearly quite unfamiliar. Such a proceeding hardly seems to be in keeping with the recognized character of German science, which is nothing if not earnest and thorough.

Kussmaul Contradicts Bergmann.

On his own ground, however, the venerable Strasburg professor was much more edifying. He absolutely negatived Bergmann's notion declaring himself unable to find the least evidence of cancer in the lungs, or indeed of pulmonary disease of any kind. Bergmann, in fact, had been entirely mistaken, and Prof. Kussmaul's journey to San Remo had been quite useless.*

I have another Tube made.

February 28.— The Crown Prince passed a fairly good day, but the weather was cold, and he did not go out on the balcony. I spent most of the day in getting another tube made at a silversmith's

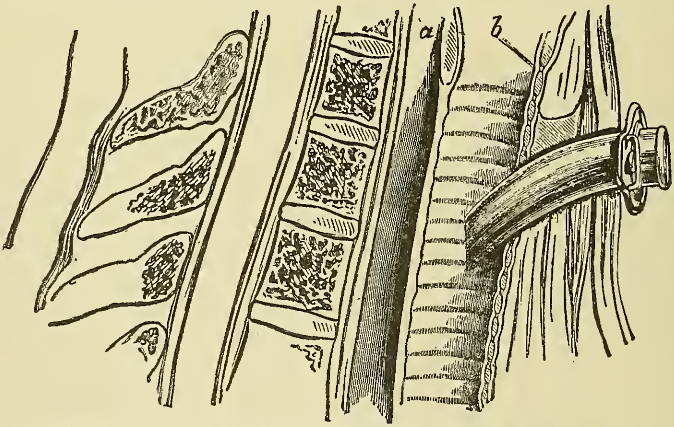

Fig. 11.—The San Remo canula shown in position. The letters *a* and *b* refer to the gullet and larynx respectively.

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* I was always greatly surprised that Prof von Bergmann could have thought that secondary cancer had formed in the lungs. and I was at a loss to understand why he should be so anxious that Prof. Kussmaul should be sent for in order to confirm his extraordinary diagnosis. I was subsequently informed. however, that six months previously von Bergmann had seen a case of cancer of the larynx with Prof Kussmaul, in which the lungs became affected as a secondary phenomenon, and he was evidently of opinion that the sequence which he had once observed was invariable.

in San Remo, and Dr. Evans of Paris gave me much valuable assistance. It was made on the same lines as the one previously constructed, that is to say, it had in part the shape of the German tube, but was so short that it would only reach just within the trachea. It was constructed so as not to pass down the windpipe at all (see Fig. 11), the lower end being cut off in such a way that it was parallel to the upper or outer opening, instead of being at right angles to it as is the case with most instruments. *It was full-sized and was provided with an inner tube.*

February 29.— During the early part of the night the Crown Prince's sleep was much disturbed, but from four to eight o'clock he slept fairly well. There is abundant discharge, and it contains a good deal of blood. I noticed that the track of the canula, owing to the weight of Bramann's instrument was lowering itself, so that the San Remo canula had a slightly more horizontal position than we had calculated upon obtaining. I inserted the new tube just described.

March 1.— The Crown Prince has had a good night, and feels much better. He looks stronger and says he feels refreshed. The expectoration still contains a good deal of blood. His Imperial Highness spent a considerable time on the balcony to-day.

March 2.—The Crown Prince had a better night, the cough being much less frequent. There was little or no blood in the expectoration, except after a particularly violent fit of coughing. His Imperial Highness spent a good part of the day, both morning and afternoon, on the balcony, where he ate his lunch. At the morning consultation we agreed that it was no longer necessary that one of the medical attendants should sit up at night, and as the Crown Prince objected to having a female nurse, Prof. von Bergmann was requested to get an orderly from Berlin. A day or two later the man arrived, and afterward took the nursing at night.

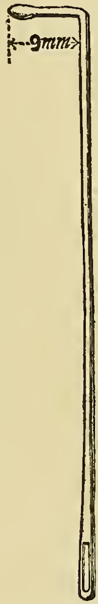

Fig. 12.—A surgical probe bent at one end at right angles to the remaining part, the bent portion measuring just nine millimetres.

Bramann's Incision, and Hovell's Measurements.

March 3.— The Crown Prince had a fairly good night, and the local condition was better. Prof. Waldeyer arrived to-day, in order to make a microscopic examination of the material expectorated through the tube.

Mr. Hovell asked me if he might make some measurements, with the view of ascertaining how far Bramann's incision was to the right of the middle line. To this I saw no objection. Mr. Hovell's instrument (see Fig. 12) consisted of an ordinary surgical probe, bent at one end at right angles to the remaining part, the bent portion measuring just nine millimetres.* The measurements were made in two ways: first, through a straight silver tube,† which was passed just to the middle of the trachea; and second, through the naked wound. On introducing the bent probe through the straight canula, and turning it to the (patient's) left side, it entirely disappeared from view (see Fig. 13), its point barely touching the left wall of

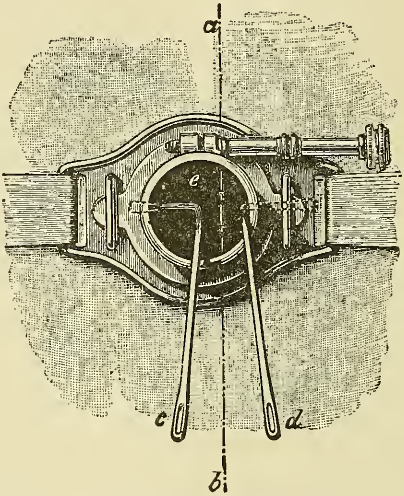

Fig. 13.—The probe foreshortened and introduced on the patient's left side (*d*), where it disappears, and on the right side (*c*), where a large portion of it remains visible through the canula. The line *a b* represents the median line of the body, and should bisect the circle formed by the orifice of the tube, instead of falling considerably to the left of the middle.

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* Nine millimetres was chosen as the length of the arm because the first canula used in making these measurements had a diameter of only a centimetre (i e., ten millimetres), and therefore a longer arm could not be employed. Though the actual tube finally used was nearly 14 mm. in diameter, the size of the bent portion of the probe was not altered.

† I had this made for taking tracheoscopic observations The tube was passed just to the orifice of the trachea, and then a minute mirror was passed through it, and views obtained above and below the tracheal orifice. It need scarcely be pointed out that the rough examinations made by von Bergmann, and referred to in the German pamphlet, when he merely reflected a ray of light into the trachea, were utterly valueless The spot that he saw was simply the posterior wall of the trachea opposite the wound; the bleeding ulcers caused by his long tube (see Fig. 7) were quite below the point of vision without a mirror.

the trachea. On turning the probe to the (patient's) right side, it immediately struck against the right side of the trachea, leaving two-thirds, that is, six millimetres of its length visible (see Fig. 13) through the end of the canula. Had Dr. Bramann made the incision in the trachea in the middle line, an equal extent of the bent portion of the probe (three millimetres) would have been visible through the end of the canula (see Fig. 14), whilst six millimetres would have disappeared at the side of the canula whichever way the probe was turned. The diagram (Fig. 15) shows a section of the trachea; the dark circle representing the canula. It will be seen that the centre is nine millimetres from the right side of the trachea and fifteen millimetres from the left side, showing that Bramann's incision was three millimetres to the right side of the median line. The canula was in fact nine millimetres from the left side of the trachea and only three millimetres from the right side. Measurements made through the open wound yielded exactly the same results. It may be interesting to observe that other measurements showed that the transverse diameter of the trachea was as nearly as possible one inch (25 to 26 mm.) This slight deviation from the middle line would be a matter of very little importance, if a straight canula could be used, but seeing that for the sake of safety it is necessary to have a descending arm, it will easily be understood

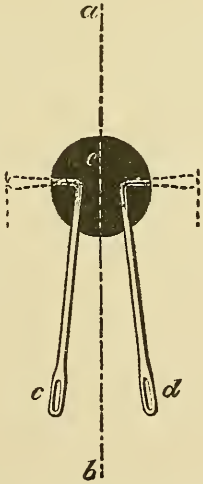

Fig. 14. — Diagram showing how the probe would have appeared on each side if the incision in the trachea had been in the median line.

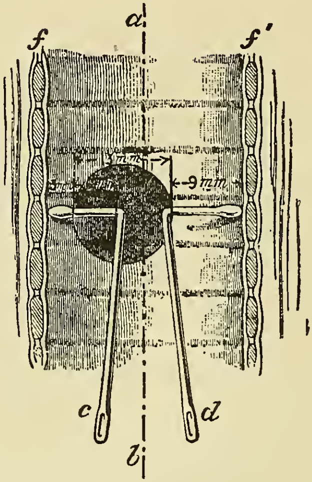

Fig. 15. — Diagram with half of the trachea supposed to be removed. ff^1 represent the outer walls of the trachea; the other letters are the same as in Fig. 13. It will be seen that Bramann's incision, instead of being in the median line, was three millimetres to the right of it.

that this descending portion, if introduced slightly on one side of the trachea, is certain to come into contact with its walls, and set up great irritation. A moderate-sized tube would have been likely to have wounded the walls of the trachea under the circumstances, but an enormous tube, such as that used by Bramann, would have been sure to have done so.

The Microscopic Proof at Last.

March 4. — The Crown Prince had a good night, although there was no decrease in the expectoration, which still contained a good deal of blood. I covered the canula with a piece of very tight-fitting india-rubber tubing, so as to prevent the sharp edge accidentally touching the wall of the trachea. Prof. von Bergmann, who attended the consultation in the morning for the first time after several days, subsequently introduced me to Prof. Waldeyer, who was good enough to show me several preparations which he had made. In some of the specimens there was a large number of cell-nests, but I did not perceive any alveolar structure. Prof. Waldeyer said that although there was no alveolar structure, he considered that from the relation of the nest-cells to one another, he thought it almost certain they had come from an alveolar structure. The nest-cells, moreover, were so abundant that he thought they could not have been produced superficially, but were evidently the result of a deep-seated destructive process. As I had always based my diagnosis largely on the microscopic character of the disease, I no longer had reason to doubt that the morbid process was of a cancerous nature. Subsequently Prof. von Bergmann who again came to the consultation and signed bulletins, called on me and said that the Emperor was very anxious that the Crown Prince should return as soon as possible to Berlin. I pointed out that for the illustrious patient to return at that season of the year would be likely to be injurious to him, but that when the weather became warm I saw no objection to his return. Prof. von Bergmann afterward asked me to embody my views in a letter, which I accordingly did.

March 5.—The Crown Prince had a fairly good night, with much less cough and expectoration than on any night since the operation. His Imperial Highness seemed in very good spirits, and his appetite was excellent. He spent a good deal of time on the balcony.

A Treaty of Peace.

March 6.—Prof. von Bergmann and Dr. Bramann again attended the consultation. Prof. von Bergmann brought with him a document which, after undergoing slight modification, was signed by all present. It ran as follows:

"*San Remo, March* 6, 1888.

"In view of the rumors circulated in the press about differences of opinion among the physicians in attendance on His Imperial and Royal Highness the Crown Prince of the German Empire and of Prussia, the undersigned declare that there are no differences of opinion among them regarding the nature of the disease. Just as little have they maintained that the malady is likely soon to take a dangerous turn. The sole responsible treatment is now, as it was before the operation, in the hands of Sir Morell Mackenzie. To the newspapers of Germany, and other countries, the physicians, in the interest of the illustrious patient and of the nations which love and revere him, once more make the request that they will refrain from all discussion of the disease, or of the methods and instruments used in its treatment.

"The local affections in and near the larynx of His Imperial and Royal Highness have not undergone any essential change. The wound has healed, the tube is well placed, the lungs are healthy, the cough and expectoration have diminished. The patient's strength is satisfactory; the appetite is increasing; there is no disturbance of digestion, pain in swallowing, or headache. Sleep lasts unbroken for hours. As Geheimrath von Bergmann's mission is ended, he will shortly leave San Remo.

"MORELL MACKENZIE. MARK HOVELL.
SCHRADER. VON BERGMANN.
KRAUSE. BRAMANN.

The Case is Restored to Me.

March 6.—The morning being warm and pleasant, the Crown Prince for the first time went into the garden. He came downstairs at half-past eleven, took his lunch at one, and returned to his room at about half-past two. It was as warm out of doors, if not warmer, than in the house, and the illustrious patient greatly enjoyed his stay in the garden, where he nearly all the time remained seated, occasionally, however, taking a short turn up and down.

The case was now formally restored to me, but in what a different condition was the illustrious patient from what he had been when I had given him over to the care of the German surgeons! On the day that he was operated on he felt "perfectly well," except that his breathing was difficult; he was now a confirmed invalid. Besides this the disease in the larynx which had previously been progressing very slowly had, through the coughing caused by ill-fitting tracheotomy tubes, been stirred into extreme activity. Greater destruction was probably occasioned in three weeks in this way than would have occurred in a year had the illustrious patient not been subjected to such injudicious treatment.

March 7.—The Crown Prince has had a good night, and the throat feels much more comfortable; less coughing.

Serious News from Berlin.

March 8.—News reached San Remo that the aged Emperor was in a critical condition, and a dispatch was received from Prince Bismarck urging the immediate return of the Crown Prince. His Imperial Highness sent for me, and asked: "Will there be any danger in my returning at once to Berlin?" I answered, "Yes, sir; there would be some danger;" he then said, "There are some occasions when it is the duty of a man to run risks, and such an occasion is now before me. I shall return the day after to-morrow. I shall be obliged to you to make whatever medical arrangements you think necessary, and to confer with Count Radolinski on the subject. I look to you to take all steps possible in order to reduce the danger of my journey north to a minimum."

Death of the Emperor William.

The next day news arrived of the death of Emperor William. I was not with the august patient at the time, but I was informed by an eye-witness that he was greatly agitated on receiving the intelligence. When I had the honor of seeing His Majesty he was still much upset. He spoke little of the event, though it was evident that he felt the loss of his aged father much more keenly than might have been anticipated considering that the death of a man of such advanced age could hardly have been unexpected. Nothing better shows how far the character of the Crown Prince stood above the ordinary standard of mankind than the fact that the shock of his venerable parent's death left no room for some time for any other feeling. Private sorrow, however, had to give way to public duty; the responsibilities of his new position had to be faced, and Frederick the Third determined to return at once to his own dominions.

CHAPTER XXI.

CHARLOTTENBURG.

The New Kaiser's Journey Home.

On March 10, after a fair night's rest, Frederick the Third left San Remo at 9 A. M. There was a slight drizzling rain as we drove to the station, but the streets were crowded with people who greeted the new Emperor with enthusiasm. During their stay at the Villa Zirio the Imperial family had made themselves extremely popular in San Remo; the grand equanimity of the august sufferer had excited universal admiration, whilst the *gentillezza* of the Empress and the young Princesses had captivated all hearts. At every station we passed there was a vast concourse of people who cheered with a heartiness that evidently gave His Majesty the greatest pleasure. During the journey the Emperor very frequently invited me into his salon, and I had the opportunity of seeing the keen interest he took in the scenery in the early part of the journey, and the unspeakable delight which he showed the next day when he was once more among his own people. His Majesty bore the fatigue of traveling very well, and coughed but little; during the later hours of the day, he occupied himself in writing and in arranging various matters with Count Radolinski. He finally retired to rest in his private compartment about ten o'clock at night. Mr. Hovell and I slept in His Majesty's salon. We reached Munich at half-past eight on the morning of the 11th, the Queen-Regent of Bavaria meeting His Majesty at the station, and passing some time with the Empress and him in their salon. The Queen then graciously expressed a wish that I might be presented to her, and said to me that she was most agreeably surprised to see the Emperor looking so well after all he had lately gone through.

In the afternoon Count Radolinski showed me an autograph note from the Emperor in which His Majesty intimated his wish that I should continue to be the chief physician in attendance on his person as I had been before he came to the throne, and that Drs. Wegner and Krause should see him night and morning, while Prof. von Bergmann was to pay him a visit once a week.

An Interview with Prince Bismarck.

At Leipzig, Prince Bismarck and several of the great state officials paid their respects to the new Emperor. After his audience with His Majesty, the Chancellor expressed a desire to have some conversation with me, and I accordingly traveled in the same carriage with him to the next station. Prince Bismarck said he was most anxious that the Emperor should be spared all unnecessary fatigue, and requested me to lay down rules as to the number of interviews which His Majesty might safely grant each day, the duration of such interviews, etc. I informed the Chancellor that I had already drawn up some rules of the kind, which I had given to the Hof-Marshal. Prince Bismarck further said he would be glad to assist me in every way to save the august patient all worry and fatigue, adding, that until the foreign princes arrived to be present at the Emperor William's funeral, His Majesty could remain perfectly quiet.

Arrival at Charlottenburg.

We reached Charlottenburg at eleven o'clock at night in a blinding snowstorm. The Emperor was received by the Crown Prince and other members of the Imperial family, and drove at once to the Schloss. The intense whiteness of the streets and houses, the brilliant illuminations, and the enthusiastic crowds of people, made a very striking picture, and as we drove up to the castle gates, the Garde du Corps, with their eagle-crested helmets, glittering cuirasses and drawn swords, added to the imposing nature of the scene. His Majesty alighted from his carriage with a firm step, and in passing through the hall, spoke to the British Ambassador and several high officials who were there. He very soon retired to his room, where I followed him and found him rather fatigued by the journey. The shaking of the railway carriage had slightly increased the discharge from the canula, but on the whole he had borne the excitement remarkably well.

His Majesty had a good night, and on the morning of the 12th I was pleased to find that the journey had done him little or no harm. He was very slightly feverish, the temperature being 99·2, and the pulse 76, but otherwise his condition was relatively satisfactory. I should mention here that His Majesty's natural pulse was rather slow, its average number of beats each minute being only 64. There was little or no change during the next two days.

Threatening Letters.

On March 14, I received several threatening letters. In one of them the writer informed me that he was one of a band of ten who had agreed to sacrifice their own lives in order to take mine. They had drawn lots, and to my correspondent it had fallen to make the attempt first, and if he failed, his companions would take his place one after the other, till the deed was done. He added, that if I did not leave Germany by March 17, my life would not be worth an hour's purchase. In two of these interesting epistles, it was declared that a German Emperor should be treated by none but German doctors. These threats seemed to be the direct result of the truculent articles which appeared day after day in certain newspapers which made it a point of national honor to support the German doctors through thick and thin. I believe it was the *Kölnische Zeitung* that said that " Mackenzie dared not let himself be seen in Unter-den-Linden," the principal street in Berlin, " because if he showed his face there the people would tear him in pieces or stone him to death." This is the paper whose Berlin representative — a certain Dr. Fischer — for many months systematically supported von Bergmann and vilified me. He made me the object of these polite attentions as far back as May, 1887, when he asserted that the operation I had succeeded in doing, was really performed by Tobold, the specialist who " no longer operated ! " Some days later (March 17) I was offered police protection, and subsequently I was frequently asked when I was going out, whether I should like to be accompanied by a detective. This I invariably declined.

The Windpipe Crumbling Away.

On March 15, a large slough came away from the upper and deepest part of the wound. It seemed to consist of broken-down tissue — mainly minute pieces of cartilage — from the trachea. This destructive process was no doubt the consequence of the pressure of the large and unsuitable tube which had been the source of so much suffering to the august patient at San Remo, and which he had continued to wear till I was permitted to introduce the roughly improvized Italian canula. The effect of the separation of the slough was considerably to enlarge the opening into the windpipe, the vertical diameter of which was now rather more than two centimetres (four-fifths of an inch). The upper part of the tracheal orifice was nearly on a level with the wound in the skin, instead of being a good deal below it as before.

Funeral of the Emperor William.

On the morning of the same day (March 15) the Emperor had received visits from the Kings and other royal personages who had come to attend his father's funeral. His Majesty asked me if it would be possible for him to take his place at the mournful ceremony, but I was obliged to inform him that in the state of health he was in, the emotional excitement inseparable from the occasion, to say nothing of exposure to the bitter weather which then prevailed, would make such a step in the highest degree dangerous. For once the Imperial sufferer appeared to be unwilling to obey my injunctions; he begged hard to be allowed to pay the last tribute of respect to the venerable parent by whose deathbed he had not been able to stand, and it required all the firmness I could command to induce him to give way. The funeral took place on the 16th, and His Majesty was more depressed than I had ever seen him. His countenance expressed the deepest sorrow; he was restless and agitated, and twice he pointed to a window looking toward Berlin, saying, "*I* ought to be there!"

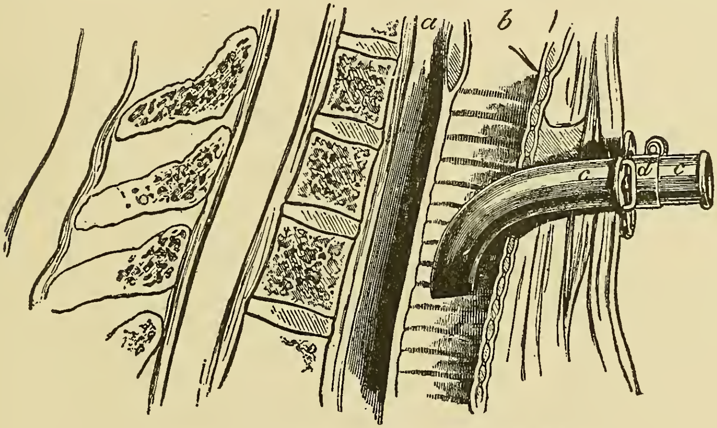

Fig. 16.—Durham's tube *in situ* and acting well.

A more comfortable Tube.

On March 16, finding that the separation of the slough had not been followed by any tendency to hemorrhage, I determined once more to try the effect of a Durham's tube, which now passed easily, and could remain fixed in a horizontal position. (See Fig. 16.) The canula introduced by Bramann having caused such extensive erosion of the mucous membrane of the windpipe with so much local inflammation, I had not ventured before this to use a tube which passed *down* the trachea. The insertion of the new instrument was borne very well by the Emperor, the temperature remaining normal.

The next day His Majesty was able to receive a large number of distinguished personages who came to pay their respects to him before leaving Berlin. I found that the new tube had caused some bleeding, which, as my note-book states, was "more this morning than it has been since leaving San Remo." There is no doubt that this was due to the softened and irritable condition in which the lining membrane of the windpipe had been left by the first canula.

On March 18, I was gratified to find there had been less bleeding. I shortened the horizontal portion of the tube (by moving the shield) to the extent of one centimetre, and *twisted its lower end slightly to the left so as to remove its edge from the right wall of the trachea.* (See Fig. 17.) The Emperor attended prayers in chapel this morning, and it was noticed that he did not cough once during the service. His Majesty received the special envoys and the whole diplomatic body, the audience lasting an hour and a quarter. In the evening the Duke of Cambridge paid a visit to the Emperor.

The Imperial Invalid's Daily Life.

The weather was still very severe, snow falling almost continuously. At this time the illustrious patient's course of life was as follows: He generally rose soon after eight, after breakfasting in bed, and was dressed by half-past nine. He then went down to the Orangery, where the Empress accompanied him, whilst I remained near at hand. About ten o'clock His Majesty returned to his study, where he gave audiences to his ministers and other officials till noon. Soon afterward he used to go again to the Orangery, where he remained for an hour or so, sitting in the central pavilion, or walking up and down the long corridor. Here also the Emperor often received visitors and officials. Though the Orangery was better than nothing, it was a very depressing place after the bright sunshine and balmy air of San Remo; the building had not originally been constructed as an Orangery, and the glass work occupied only one side. The orange trees were old, thick-stemmed, and covered with leaves, so that the interior was very gloomy. After lunch the Emperor generally saw some members of his family, after which he rested for an hour or two. Before, or after taking his rest, His Majesty often received Prince Bismarck or the Crown Prince. After his siesta the Emperor generally attended to state business, signed papers, and

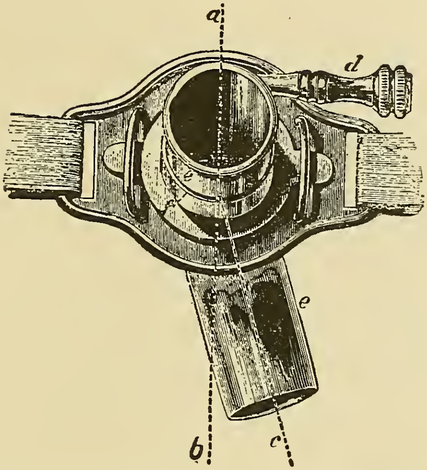

Fig. 17.— Durham's tube (full size). It is twisted slightly to the (patient's) left side, to avoid the right wall of the trachea. Compare Figs. 13, 14 and 15.

wrote his diary. He dined at eight, and went to bed between half-past nine and ten.

The Question of Operation in a New Aspect.

As the health of the Imperial sufferer had by this time somewhat recovered from the effects of the rough handling to which his wounded throat had, in spite of my protests, been subjected at San Remo, the question arose in my mind whether a radical operation should now be proposed to His Majesty. I had resolutely set my face against any such measure when there was still a doubt as to the nature of the disease; but since Prof. Waldeyer had pronounced it to be cancer, the situation was entirely changed. The only hope of cure lay in removal of the disease. It was a very forlorn hope, no doubt, and one more than counterbalanced, to my mind, by the immediate risk of the operation, and the wretched condition in which those who survive it are almost invariably left, owing to the dreadful mutilation they have undergone. Moreover the chances are always enormously in favor of a recurrence of the disease within a very few months. The results of complete extirpation of the larynx have hitherto been so bad (see Table III., p. 276), that some practitioners are doubtful whether so deadly an operation has any place in legitimate surgery. My own opinion, however, is that, fatal as this operation has proved to be, a greater number of patients are cured by it than by what is miscalled "simple thyrotomy." *The immediate mortality* from the operation is 36·23 per cent., thirty-six patients dying within nine days! Still 8 cases out of 138 are said to have been cured by this operation! On the other hand, it is certain that not a few of the fatal or unsuccessful operations *carent vate sacro*, and are not allowed to appear in published statistics. If the record were complete, the results would probably deter the boldest surgeon from attempting a procedure in which, as Dr. Paul Koch * has said, it is a triumph for the operator if the patient does not actually die under the knife.

Nevertheless, as the operation does give the patient a *chance* — infinitesimal though it be — and the disease is absolutely incurable by any other kind of treatment, I thought it right to discuss with Prof. Krause and Mr. Hovell the propriety of mentioning the matter to the Emperor. These gentlemen fully agreed with me that after all the august patient had gone through since tracheotomy had been performed, any severe surgical measure was out of the question. It is certain, however, that even at that time the operation, *quâ* operation, which would have been perfectly feasible, because after death the anterior wall of the gullet was found to be intact, and the ulcer could have been dissected away from the posterior wall of the larynx, the œsophageal tube being still left in a state of integrity. Or, if that had not been found feasible, a portion of the œsophagus could have been cut out, as is usually done in these operations. I am far from saying that even if the illustrious patient had been in a state of health to admit of extirpation of the larynx, I should have urged him to submit to it, but I maintain that had it not been for the unfortunate mismanagement of the case by Drs. von Bergmann and Bramann in February, the operation might possibly have been undertaken when the nature of the disease had been definitely established by Prof. Waldeyer.

It is beyond all question that the disease made much more rapid progress after the tracheotomy than before. As a rule, that operation has quite the opposite effect, for it gives the diseased parts comparative rest, and so far saves them from irritation. Why was the result so wofully different in the present case? Because the violent shaking of the larynx broke down the tissues, and caused as much destruction in a few weeks as is ordinarily produced by the unassisted action of the disease in many months. What was this shaking of the larynx due to? To the violent and almost continual coughing, set up by the chafing of the delicate inner wall of the windpipe by ill-fitting tracheotomy tubes. Later on, as will be told in due course, a further source of irritation was supplied by the trickling into the windpipe of matter from an abscess caused by Prof. von Bergmann's blundering efforts to make force supply the place of skill in introducing a canula.

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* "Annales des Maladies de l'Oreille, etc.," March, 1879.

The Bleeding Stopped at Last.

In the meantime, as I have said, the ill-used trachea had, under more intelligent management, had some chance of recovering to a certain extent. From March 19 to the 22d, there was comparatively little coughing, and hardly any bleeding. His Majesty slept fairly well at night, and the temperature remained almost normal. It was only three weeks since I had been allowed to insert the tube I had had made at San Remo, and the bleeding, which till then had been all but continuous, had now almost ceased! It must be understood that the loss of blood was much greater than would be gathered from the euphemistic "blood-stained expectoration" of the bulletins. It was real hemorrhage, slight, it is true, but almost constant, so that a considerable amount of blood was lost each day. After March 22 there was no further bleeding, except once or twice after massage had been performed, and a very slight attack on March 31. This gratifying result was entirely due to the substitution of a proper tube for the instrument of torture which had wrought all the mischief, and is therefore a significant commentary on the assertion repeatedly made by von Bergmann, in the most emphatic terms, that no matter what tube was used the bleeding would never cease. (See p. 170.)

Another "Controller."

About this time I discovered that I had again been placed under "control"—on this occasion by Prof. von Bergmann. I learned that the orderly in attendance on the Emperor was in the habit of making daily reports to Bergmann, who had, as a matter of fact, engaged him, of everything that took place whilst he was on duty. This arrangement was no doubt only an additional proof of the absorbing interest which Prof. von Bergmann took in the illustrious patient's condition. Although many physicians in my place would no doubt have strongly objected to reports being made behind their backs by a servant to a colleague engaged in the case, I did not think it worth while to take any notice of the matter, especially as the man did his work satisfactorily in other respects. On the whole I preferred his "control" to Landgraf's; his "observations" were no doubt just as accurate, and he did not insist on using the laryngoscope. I cannot say, however, that I admire the system of medical police supervision to which I was subjected; it may be useful for insuring a copious supply of "official sources," but it is insulting to the physician, and might easily be injurious to the patient.

The Wiesbaden Project.

Before the Emperor came to Berlin, there had been some question of his going to stay at Wiesbaden for a time, for the sake of quiet and the comparative mildness of the climate. During the first fortnight of His Majesty's residence at Charlottenburg this project was often discussed, but as at the time the whole of Germany was deeply covered with snow, there did not seem to be any advantage in his leaving Berlin. Indeed only the sternest necessity would have induced me to consent to the Emperor's undertaking any journey whatever at that time.

Further Disintegration of the Windpipe.

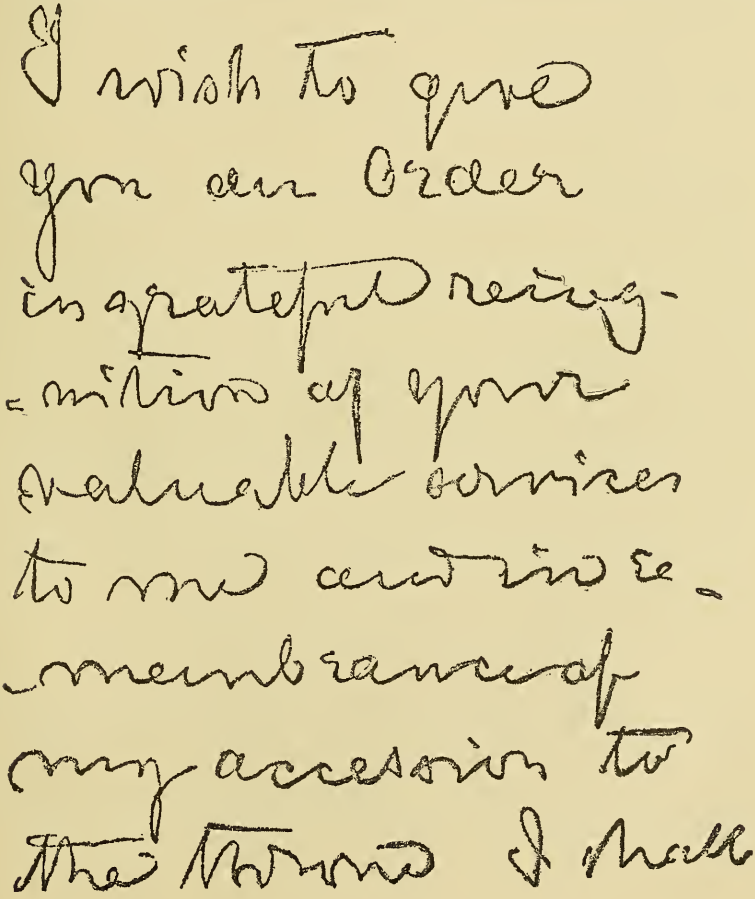
On March 23, fresh evidence was supplied of the havoc which had been wrought by Bramann's tube. During the preceding night the Emperor had had several severe attacks of coughing, which came on at intervals of an hour or two and lasted for a considerable time. On removing the tube in the morning a flat, quadrilateral piece of cartilage about twelve millimetres long, and from six to seven millimetres wide, was found loose in the upper part of the tracheal opening. Prof. Hartmann, to whom it was sent for microscopic examination, pronounced it to be a piece of hyaline cartilage, which had no doubt come from the windpipe. It represented about a sixth part of one of the tracheal rings.

Massage Tried.

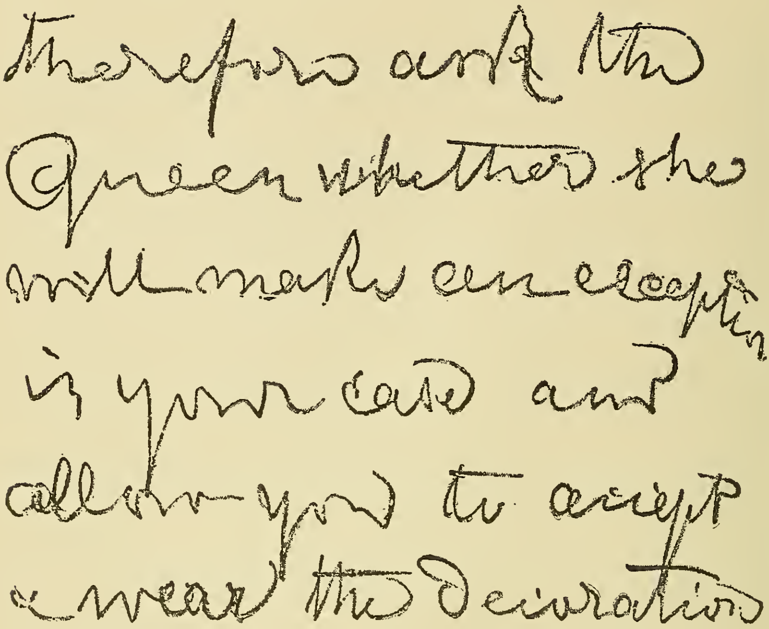
At the general consultation on the same day, it was agreed that as the Emperor was confined to the house by the very severe weather, and was suffering from the want of exercise, massage should be tried as the best available substitute. On the recommendation of Prof. von Bergmann it was decided that the manipulations should be carried out by Dr. Zebludowsky. As massage had not yet quite found its level among our therapeutic resources, being vaunted as a panacea by some and despised as quackery by others, it may be right for me to point out the precise object for which it was proposed to apply it in the present case. There was of course no idea that it could have any effect on the disease, but it was thought it might be useful as giving *passive* exercise to the muscles, and stimulating the vital functions which the enforced bodily inactivity was making torpid. Men of stalwart frame who have been accustomed to an outdoor life involving much physical exertion, always suffer greatly from want of exercise, and His Majesty was no exception to this rule. Massage was applied on two or three occasions with great skill by Dr. Zebludowsky, but it was found that it did not suit the illustrious patient, as it over-excited him, and caused some fresh bleeding from the throat. It was therefore decided to discontinue it.

Honors Gracefully Conferred.

On March 25, the Emperor put into Dr. Krause's hands a document appointing him an Extraordinary Professor in the University of Berlin. The title of Professor has fallen to such "base uses" in this country that, as Matthew Arnold pointed out, learned men are generally rather shy of claiming it. In Germany, however, the use of the title is so strictly regulated that the possession of it is an honor which is greatly coveted; it also makes an immense practical difference in a professional man's position. At the same time His Majesty handed me a slip of paper of which the annexed sketch is a facsimile reproduction.



I wish to give
you an Order
in grateful recog-
-nition of your
valuable services
to me and in re-
-membrance of
my accession to
the throne I shall



therefore ask the Queen whether she will make an exception in your case and allow you to accept & wear the decoration

This communication is very characteristic of Frederick the Noble, showing as it does his profound respect for the Queen, and his delicate thoughtfulness for humble individuals like myself. I know of no other instance in which a foreign monarch has, before conferring an honor on an Englishman, not only taken the trouble to ascertain whether the distinction would be pleasing to the recipient's own sovereign, but obtained leave for him to accept and use it. Honors thus conferred are something immeasurably beyond the mere title or insignia which represent them; they become precious marks of gracious personal interest like the gifts of an attached friend.

Attacks by the "Reptile" Press.

From about this time I was made the object of constant attacks in some of the German newspapers which seemed to draw their inspiration largely from Prof. von Bergmann; conspicuous among these were the *Kölnische Zeitung*, the *Kreuz Zeitung* and the *Post*. A large number of provincial papers took their cue from these journals, and abused me with a virulence of which English people can scarcely form an idea. Threatening letters came to me in shoals, but I am happy to say I also received many messages of sympathy and encouragement; whilst the former all emanated from one clique, the latter were sent by representatives of all classes, the aristocracy, professional men, merchants, tradespeople and workingmen. These kind and encouraging letters will always be kept by me amongst my most prized possessions, as delightful souvenirs of a most trying time. It is amusing, but at the same time somewhat painful, to note, as showing the depths of malignant stupidity to which men may fall when misled by passion, that one of the chief grounds of attack against me was the alleged fact that I was of Jewish origin. When argument and invective were exhausted, the appeal to the anti-Semitic feeling so prevalent among certain classes in Germany was a never-failing resource. My real name was said to be "Moritz Markovicz," of which hypothetical appellation "Morell Mackenzie" was gravely said to be the *English* equivalent. Quite recently (August 31) I was favored with an advertisement taken from an illustrated German paper, in which my portrait was promised for an early number in the following terms: "We shall also lay before our readers an account of the goings-on of that Jewish-English horror Markovicz *alias* Mackenzie, and as a proof that the so-called Englishman is really a Jew we shall publish his portrait after a cabinet photograph." This interesting work of art has since appeared, and I observe that my "innocent nose" has been somewhat cruelly aggravated into a formidable appendage of the caricature Hebraic type. The descriptive letter-press is worthy of the picture. My parentage is thus spoken of: "Our readers will remember that it was stated in many quarters that the grandfather of this so-called Englishman was a Polish Jew of the name of Markovicz, who left Posen and settled in England. This man (Morell Mackenzie), who denies everything, has never denied this. The name of Markovicz was afterward changed to Mackenzie." My respected grandfather, who was extremely proud of his Highland descent, and who never set foot outside the United Kingdom, would doubtless have been surprised to hear that he was a Polish Jew! A correspondent wrote to me from Dantzig, "It is no good for you to pretend that you are not a Jew. You encouraged a Jewish doctor from this town to settle in London, a thing which nobody but one of the tribe would have thought of doing." Even persons professing to be my friends exhibited a lively curiosity as to my origin. A lady wrote to me from Magdeburg, saying that she had defended me on every point, except as to the question of my Jewish faith. If I could only give her some evidence to show that I was not a Jew, she thought things would be more comfortable in that town. She would be glad to know where I was born, and where my ancestors came from. I need not say that if I really did belong to the remarkable race which has produced so many men of the highest distinction in every department of literature, art, and science, so far from being ashamed of such an extraction I should be proud of it. I have only thought it worth while to notice the matter merely as an example of the gross inaccuracy of statement which, not less than systematic scurrility, has been the distinguishing feature of the attacks on me. These absurd attacks are of course utterly unimportant in themselves, but they serve to show the character of the people who supported Prof. von Bergmann. That gentlemen's journalistic friends not only denied that I did the Emperor any good, but accused me of preventing their *protégé* from using his skill to relieve the illustrious patient.

Out of Doors Again.

On March 28, the Emperor was able to go out for the first time since his return to Germany. The weather was bright, and His Majesty walked for some time in the open air outside the Orangery. On the 29th (Maundy Thuraday), the Emperor, together with the Empress and the rest of the Imperial family, took the Holy Communion, and His Majesty afterward went for a drive in an open carriage to the Grünewald forest. He wore the ample blue cloak of the Prussian cavalry, with fur cape and field cap. I followed in a carriage with one of the adjutants. In the afternoon His Majesty walked in the garden and in the park.

The next day, as the sun was shining brightly, I said to the Emperor: "A fortnight ago, sir, you asked me if you might drive into Berlin to pay a visit to Her Majesty the Empress Augusta, and I felt obliged to tell you that it would be dangerous for you to leave the house. To-day, I think you may safely go." The Emperor's face beamed with pleasure, and he shook me warmly by the hand, saying, "I am, indeed, delighted." This was the first time he had visited his capital since his return. His appearance there was quite unexpected, and accordingly the police had made no arrangements for the preservation of order. He was received with such enthusiasm that I felt rather alarmed lest the excitement might be too much for him, but he bore it well, and seemed as glad to be among his people as they were to see him. It was sad, however, to think of the stricken Kaiser in the midst of that seething sea of vigorous life. I was agreeably surprised on this occasion to find that, in spite of all the abuse which I had received from a section of a German press, and the threatening letters which had poured in upon me since I had been at Charlottenburg, the Berlin people seemed very well disposed toward me. The men took off their hats, and the ladies bowed to me in a friendly way. On returning to Charlottenburg, His Majesty did not seem at all tired, and was able to walk in the garden for some time in the afternoon. Two days later the Emperor paid a second visit to Berlin.

Progress of the Disease.

On April 3, His Majesty said he felt better than he had done since the operation. He was able to dress himself almost without help. His temperature, however, was higher that evening than it had been for some time, reaching 101° Fahrenheit, whilst his pulse was 86.

Prof. Esmarch, of Kiel, visited the Emperor on this day, and afterward had some conversation with me. He urged me to give the Chian turpentine treatment a fair trial, saying that in two cases of cancer under his own care it had done a great deal of good. I informed him that it had already been tried in the Emperor's case.

On April 4, the temperature was still rather high, and the illustrious patient had been much troubled with cough the night before. On the 5th, a good deal of disorganized tissue came away from the right side of the opening in the windpipe, and some vegetations were noticed around the latter. These were touched with nitrate of silver, which, however, only made them look "angry" and inclined to bleed. The next day the upper part of the wound and the channel of the windpipe above the tube was seen to constitute a solid arch of morbid tissue; whether this was new growth or simple inflammatory swelling it was impossible to say. There was inflammation of the areolar tissue above and at the sides of the wound, and at the orifice of the trachea. His Majesty also complained of some pain in swallowing; this appeared to be due solely to the inflamed condition of the trachea, which is, of course, pulled upward in deglutition. The Emperor also suffered from headache, which was, however, relieved by the remedy which generally proved effectual in his case.

It was only too clear that the whole structure of the windpipe in the neighborhood of the wound was falling to pieces. On April 10, two large fragments of cartilage came away, and the trachea began to lose its rigidity. There being hardly any cartilage left in front to support the tube, the latter lay loose in the wound, and the back wall of the trachea tended to fall forward so as partly to cover the inner end of the tube.

At this time there was a good deal of excitement in the public mind about the proposed Battenberg marriage, but I cannot say that it produced much effect on the Emperor.

My Visit to London Postponed.

It had been arranged some time previously that about this time I should be allowed to return to London for a week or two, and as there were no symptoms indicative of impending danger, I was looking forward to my brief holiday with some pleasure. The Emperor, however, said to me one evening, "I hope you won't mind putting off your return to London for a short time." He continued, "I expect your patients in London must quite hate me for keeping you here." I replied, "No sir. All English people take the deepest interest in your health. There is no one who would not make sacrifices to be of service to you." His Majesty replied, "I cannot understand why it is that people are so kind to me." In the evening the Emperor sent for me and handed me the Cross and Star of the Hohenzollern Order, together with an autograph letter, of which the following is a copy:

"CHARLOTTENBURG, April 10, 1888.

"MY DEAR SIR MORELL,

"You were called to me by the unanimous wish of my German medical attendants.

"Not knowing you myself, I had confidence in you in consequence of their recommendation. But I soon learnt to appreciate you from personal experience.

"You have rendered me most valuable services, in recognition of which, and in remembrance of my accession to the throne, I have the pleasure to confer on you the 'Comthur Cross and Star of my Royal Order of Hohenzollern.'

"Yours truly,

"FREDERICK, I. R.

"Sir Morell Mackenzie."

Mr. Hovell received at the same time a high order from His Majesty — the Second Class of the Kron Order.

A Fatal Day.

As, owing to the unfortunate series of events which occurred on April 12, that day proved to be a turning-point in the case, I need make no apology for describing what took place at some length. Before doing so, I may be allowed to say that what I am about to state here is the exact truth to the best of my knowledge and belief. There has been so much misrepresentation and downright lying about this matter, and the consequences of what occurred were so serious, that it is necessary to place the whole body of facts before my readers in order that they may be in a position to form a correct judgment. Let it be understood, that if I seem to express myself strongly it is only because I feel strongly; if I have "nothing extenuated," at least I am not conscious of having "set down aught in malice."

On the night of April 11–12 the Emperor was seized with severe coughing between midnight and 1 A. M. At 1.30 Mr. Hovell noticed, that although air passed freely through the canula, the breathing was accompanied by a noise as if there were something projecting below the lower end of the tube. On removing the canula the noise ceased — a circumstance which caused Mr. Hovell to think (and this view I afterward confirmed) that the lower edge of the posterior part of the canula must slightly press into the posterior wall of the trachea, owing to its bulging forward at that part. This latter view was supported by the fact that the external part of the canula was pushed forward. Mr. Hovell slanted the tube rather more away from the right side, and inserted a pad under the lower edge of the shield so as to tilt the lower and back edge of the canula away from the posterior wall. The noise was somewhat less after this was done, but did not entirely cease. The Emperor also breathed a good deal more quickly than usual. At 2.15 A. M. Mr. Hovell was again called, but found no change. At 2.40 he returned to the illustrious patient, not having gone to bed in the meantime, and found him in precisely the same condition. Mr. Hovell was summoned several times afterward during the night, and on more than one occasion he slightly altered the position of the tube by placing pads under the shield. At 8 A. M. I saw the Emperor, and as the breathing, though quickened and slightly noisy, was quite free, I determined to leave the canula *in situ* till Drs. Krause and Wegner arrived. At the consultation it was agreed to try the effect of a shorter tube. His Majesty appeared to breathe perfectly well as soon as this tube was introduced, but about half an hour afterward the respiration again became rather noisy. I therefore removed the short tube and replaced the former one. As there was no urgency whatever, and as, in anticipation of some trouble of the kind, I had ordered several special tubes in Berlin three days before, I thought it would be better to go and fetch these canulas rather than try any of those I had by me. Finding, however, that the tubes were not quite ready, I directed one of a suitable shape to be quickly made of lead, and asked the instrument-maker to come to Charlottenburg at once, so that if the first tube did not answer, a second could be made on the spot.* As the tube which I now proposed to try was different in shape from any of those which had been used since the case had been formally given up to me by Prof. von Bergmann at San Remo, I thought that professional courtesy required that I should ask him to be present on the occasion. As I intended to do whatever was necessary with my own hands, there was really no need for the assistance of a surgeon, but it is an elementary rule of civilized medical practice that all those associated together in the management of a case should be made acquainted with the details of the treatment that is carried out. As soon as the new tube was ready, therefore, I despatched a messenger to Prof. von Bergmann, to request him to come to me *as soon as possible*, meaning of course that I was anxious to proceed to change the tube without delay.

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* The advantage of lead is not only that it can be very quickly made, but that the curve of the instrument can also be readily *altered*. For a short time a tube of this material answers perfectly well.

In sending off that message, little did I think that it would have such fatal consequences. It is no exaggeration to say that these hastily scribbled lines proved to be the death-warrant of the Emperor. Had I had the slightest idea of what was to follow, I should certainly not have allowed any over-punctilious notions of etiquette to mislead me into taking so disastrous a step. At the moment, however, it appeared to be the right thing to do. The Emperor on his accession to the throne, had appointed Prof. von Bergmann to be one of his medical attendants no doubt in deference to public opinion in Germany, and I had been repeatedly and urgently requested by the chief officer of His Majesty's household, Prince Radolin, to endeavor to work harmoniously with von Bergmann, who, Prince Radolin assured me, was "greatly trusted by the official classes." Hence my anxiety that there should be no ground for complaint, so far as I was concerned, of any violation of the decencies of professional intercourse.

It was five o'clock in the afternoon before Prof. von Bergmann arrived. As soon as he came into my room, I noticed that he was in a state of great excitement; whether this agitation was due to exaggerated reports which he may have received as to the Emperor's condition, or to causes of a more personal nature, I am unable to say; but either from over-excitement or from some other cause, Bergmann behaved in a most extraordinary, indeed altogether unaccountable, manner.

I briefly explained the circumstances, and showed him the tubes which I had got ready, though Bergmann seemed in too great a flurry to be able to listen attentively. We then proceeded to the Emperor's room, accompanied by Mr. Hovell, each of us carrying several tubes. We found the Emperor engaged in writing. The inspiration was distinctly audible, but beyond this there was not the slightest indication of any difficulty in breathing. Prof. von Bergmann placed a chair opposite the window, and asked the Emperor to sit down upon it; and thereupon, without making any remark, he quickly undid the tape which kept the canula in position, pulled the latter out, and, with considerable force, endeavored to insert one which he had in his hand, and which was not provided with a pilot. The instrument was forced into the neck, but no air came through it.

The Emperor's breathing thereupon became very much embarrassed, and the professor withdrew the tube. This was followed by a violent fit of coughing, and there was considerable hemorrhage. Prof. von Bergmann next seized a tampon-canula covered with sponge, cut the sponge quickly off, and then tried to push the tube into the windpipe. Again no air came through the canula, and it was clear that instead of entering the air-passage it had been forced downward in front of the trachea, ploughing up the soft tissues in that situation, and making what is technically known as a "false passage." Again the professor had to pull out the tube, and again its withdrawal was followed by violent coughing and streams of blood. To my consternation, Prof. von Bergmann then pushed his finger deeply into the wound, and on withdrawing it tried to insert another tube; he again failed, however, and again the attempt was followed as before by most distressing coughing and copious bleeding. The position of the canula as introduced will be understood by examing Fig. 18. Prof. von Bergmann then asked that his assistant, who was waiting in his carriage outside, might be sent for. It seemed as if he contemplated doing some further operation, perhaps enlarging the wound; but the Emperor was saved any further torture by the arrival of Dr. Bramann on the scene. Prof. von Bergmann at once yielded the case into the hands of his assistant,

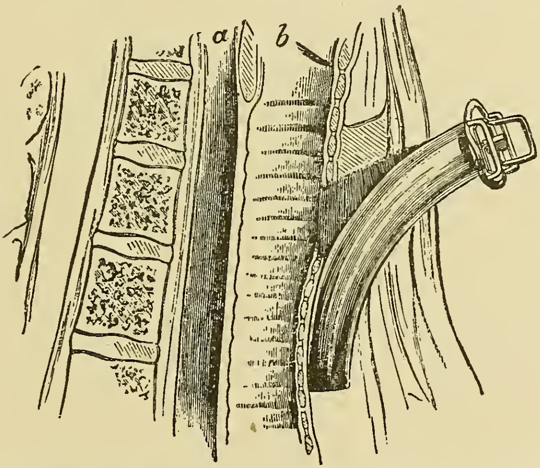

Fig. 18.—Diagram (half size) showing the part into which von Bergmann plunged the canula. The instrument, instead of being in the trachea, is seen to be in front of it.

and the young surgeon, taking a moderate-sized canula (No. 8 German measure), passed it with the greatest ease into the trachea. There had, indeed, never been any difficulty in introducing the canula. I had inserted a tube in the presence of my colleagues, Drs. Wegner and Krause, at 10 o'clock that morning, and I subsequently took it out and substituted another for it. Although both these tubes had passed quite freely and without causing either coughing or bleeding, neither of them was altogether satisfactory, and other canulæ had, therefore, to be procured. The Emperor coughed almost incessantly, and continued to lose much blood for two hours after Bergmann's abortive struggles with the tube; the severity of the symptoms then began to diminish, but there was still a good deal of coughing with some hemorrhage at intervals, till His Majesty went to bed.

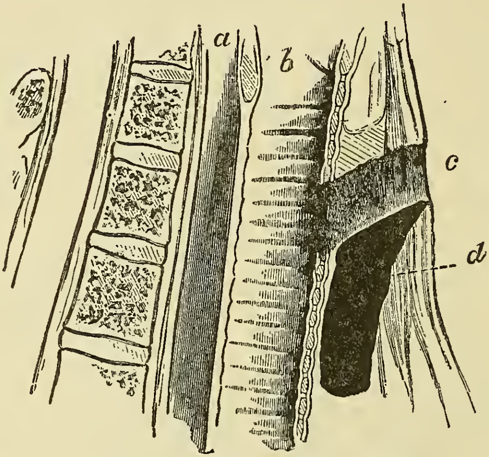

Fig. 19.—Diagram showing von Bergmann's "false passage." *c* is the proper track of the canula; *d*, the black part, shows the false passage.

Half an hour after the professor's departure, the Emperor sent for me and asked, "Why did Bergmann put his finger into my throat?" I replied, "I do not know, sir." His Majesty then went on to say, "I hope you will not allow Prof. von Bergmann to do any further operations on me." I answered, "After what I have seen to-day, sir, I beg most respectfully to say that I can no longer have the honor of continuing in attendance on your Majesty if P. von Bergmann is to be permitted to touch your throat again."

Bergmann's roughness was never forgotten by the Emperor, although the nobility of his nature prevented him from showing any resentment, and even from bearing that awkward operator any ill-will. That von Bergmann should have been under the impression that the Emperor felt grateful to *him* because *Bramann* inserted the tube, and that His Majesty should have indicated his satisfaction by " a joyful motion of his hand," and by a " thankful shaking of our [Bergmann's and Bramann's, to wit] hands," * is indeed remarkable, and would tend to show that von Bergmann was not at the time in a condition to observe things accurately. The Emperor often referred afterward to von Bergmann's roughness, and unimpeachable testimony remains as to the opinion of His Majesty on this subject in his own handwriting three days before his lamented death. I have not been permitted to reproduce this autograph, but I shall be happy to show it to anyone who has a legitimate claim to inspect it. The means of testing the truth when von Bergmann and I make opposite statements may not always be present, but here at least is a touchstone of von Bergmann's veracity: von Bergmann says that the Emperor " thankfully shook his hands; " the illustrious patient's own handwriting, on the contrary, shows that he was by no means satisfied with his treatment by Bergmann.

I returned to my room and discussed Bergmann's conduct with Mr. Hovell, who, as well as myself, had noticed the strangeness of his manner on his arrival. I could not see anything in the case which could have justified Prof. Bergmann introducing his finger into the wound. It is true that there were some granulations round the orifice of the wound, such as are often met with after tracheotomy, but there was really nothing whatever to interfere with the passage of the canula. Mr. Hovell expressed his surprise to me that von Bergmann, who professed to attach such extreme importance to the use of antiseptics, should not have at least washed his hands before introducing his finger into the tracheal wound. It appears, however, according to Bergmann's recent assertion,† that he dexterously managed to dip his hand into some carbolized water, without either of us being able to perceive it. I had never before seen a canula forced into the tissues of the neck, though I had occasionally heard of the accident happening to young operators. One case had also come under my own notice in which the accident, having occurred to a young surgeon, the operation had to be completed by the nurse, who, from her large experience in such cases, was easily able to introduce the canula into the windpipe. This young surgeon, however, was peculiarly unfortunate with his tracheotomy cases, two patients having died under his knife shortly afterward. In all these cases, however, the accident had occurred at the time of the operation, when there is sometimes a little difficulty in getting the tube through the little slit which is made in the windpipe. Under such circumstances the mistake, if not excusable, is at any rate intelligible. But in a case where the operation had been done two months before; where the wound in the neck and that in the windpipe communicated by what may be called a beaten track, along which the tube, if properly directed, almost found its own way in, it is simply incomprehensible to me that any surgeon should have done such mischief unless his wits were disordered through nervousness or some other cause. It was like a man trying to force a way through the wall of a house when the door stood open before him! The injury inflicted by von Bergmann was no doubt much more serious than it would have been had he used a right-angled tube, for this instrument is provided with a pilot or rounded knob (Fig. 20, C, *c*), which prevents the sharp edge of the end of the canula from coming in contact with the wall of the trachea, whilst the ordinary canula as used by von Bergmann was, in point of fact, a circular knife (Fig. 20, B, *b*). It is easy to realize what a dangerous weapon this must be in the hands of a clumsy or excited surgeon.

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* *Op. cit.*, p. 81.

† *Op. cit.*, pp. 81.

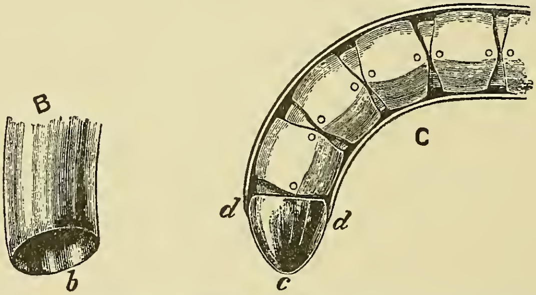

Fig. 20.—The extremities of von Bergmann's unprotected, and Durham's guarded, canula. B shows the extremity of the canula used by von Bergmann on April 13, the *sharp cutting edge of which is seen* at *b*. C shows the extremity of a Durham's canula with the lobster-jointed pilot, which projects at *d*, *d*, *c*, as a blunt knob, which *prevents the edge of the tube cutting the tender tissues of the neck*. The pilot is of course withdrawn as soon as the canula is introduced.

The Reptilia Again.

The whole of the incident which I have just related was misrepresented in the grossest way by the *Kölnische Zeitung*. Mr. Hovell was accused of having, whilst trying to adjust the canula during the night, injured the trachea and pushed fragments of diseased tissue into the lungs. This (according to the ingenious scribe) brought on repeated attacks of suffocation; and, after several hours' delay, Bergmann had fortunately arrived in time to snatch the Emperor from the jaws of death by introducing a new tube, with much else in the same style. Prof. von Bergmann denies that he caused this false and ridiculous statement to appear in the *Kölnische Zeitung*. I shall deal more fully with this subject in criticising that gentleman's published report. (Section II., p. 252.)

Results of Bergmann's Handiwork.

On April 13th, the Emperor complained of soreness in the neck. He was able, however, to drive into Berlin in a closed carriage with the Empress and the Princess Victoria In the evening, as I was going out to dinner, I paid a visit to His Majesty at half-past seven. I returned at ten o'clock, and at once went to the illustrious patient. I found him breathing rather quickly, but there was no hindrance to the passage of air through the canula. I left the room to report on His Majesty's condition to the Empress, with whom I remained ten minutes or a quarter of an hour. When I returned to my sitting-room I found that the orderly had called Mr. Hovell to see the Emperor. From Mr. Hovell's description I gathered that there was no change in His Majesty's condition.

About eleven o'clock, while Mr. Hovell was still with me, Dr. Wegner came to my room and said, "I have been called by the orderly. I find the Emperor in a very serious condition; he is breathing very irregularly." I expressed surprise that the orderly should have fetched Dr. Wegner from a distant wing of the palace, when Mr. Hovell and I had both seen His Majesty within the previous half-hour. and I assured Dr. Wegner that there was nothing at all serious in the Emperor's condition. His Majesty was a little feverish, the pulse being 92, and the temperature 100·8° F., and he was breathing rather quickly; but I pointed out to Dr. Wegner that this had nothing to do with any obstruction to the passage of air, and was merely a nervous phenomenon due to febrile irritation.* As, however, Dr. Wegner seemed anxious that I should see the Emperor again, I went with him and Mr. Hovell to His Majesty's bedside, and watched the august patient for a few minutes. As Dr. Wegner said he had no suggestion to make either as regards remedies or measures, and did not propose that I should change the tube, I concluded that he was satisfied that the Emperor's condition was not so serious as he had at first supposed.

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* At a later period I came to the conclusion that the quickened respiration which was first noticed on this occasion was due to "shock," or in other words to the injury done by von Bergmann on the afternoon of the previous day. Before that surgeon had dealt his fatal blow hurried respiration had never occurred.

Mr. Hovell saw the Emperor several times between eleven and two that night. At the latter hour His Majesty wrote on his tablets, "Why does the orderly ask if my breathing is difficult? I do not notice anything." At half-past four the Emperor told Mr. Hovell that the orderly had again asked him the same question. Toward morning His Majesty's breathing became slower and more tranquil, though several times during sleep it was very hurried. Fearing lest His Majesty should again be worried by the fussiness of the orderly, I took steps in the morning to have him replaced by some one better fitted for the post. This, like almost everything else which I endeavored to do for the benefit of the illustrious patient, was made a ground of attack on me. It was first stated in the *Kölnische Zeitung* that the new attendant was an Englishman. When this was shown to be false, it was said that he was a Jew, on no better ground, as it proved, than that the man had once been a nurse in a Jewish hospital! I mention these things not as of any interest or importance in themselves, but as showing the incredibly petty spite which animated many of my critics.

On the 14th the Emperor felt rather poorly in the morning, but was up betimes, and did a great deal of writing. In the afternoon he drove out, and walked about a little in the Thiergarten. At 6 P. M. the Empress sent for me, and said His Majesty had had a slight shivering fit. I was quite prepared for the announcement, for ever since Bergmann's unfortunate performance on the 12th, I had been fearing the onset of pneumonia (from the trickling of blood and decomposing substances into the lungs), or the development of acute suppurative inflammation round the "false passage." In the evening His Majesty's temperature was 103° Fahrenheit; he had a restless night, and on the following morning there were some rales in the larger bronchial tubes, though there was no sign of congestion in the lungs themselves. Fully realizing the gravity of the situation, I requested that Prof. Leyden should be summoned. Finding that he was away at Wiesbaden, I obtained permission to call in Prof. Senator. That eminent physician, after a most careful examination, could detect no disease in the lungs except slight bronchial catarrh.

The next day (April 16) my worst fears were confirmed. The temperature remained at about the same level (102° to 103° Fahrenheit), and pus began to be discharged in abundance from the canula and from the lower part of the wound. *On pressing over the front of the neck, and carrying the hand upward, matter could be seen to well out more profusely.* This proved that an abscess had already formed in front of the trachea where the canula had been pushed in by

Bergmann. The pus was certain to burrow downward toward the chest, and it was only too likely that nearly the whole of the front of the neck would be converted into a huge abscess, involving widespread disorganization of the structures round about the trachea, gradually undermining the Emperor's strength, and leading only too surely to hectic, and in no long time to death. This fatal complication, be it remembered, was in no way the natural result of the disease; it was attributable solely to the injury done a few days before by Bergmann's random stabbing with an unguarded tube.

On the 17th we had the advantage of Prof. Leyden's counsels; he also, after an exhaustive examination, failed to find the least evidence of disease in the lungs. These organs were again most carefully examined by Prof Senator and Krause, as well as by myself, and we were unanimous in pronouncing them to be quite unaffected. Prof. von Bergmann, however, who had not shown himself a master of the art of physical exploration of the chest at San Remo (see p. 168), insisted, in opposition to us all, that there were secondary deposits of cancer in the lungs. He afterward maintained, in spite

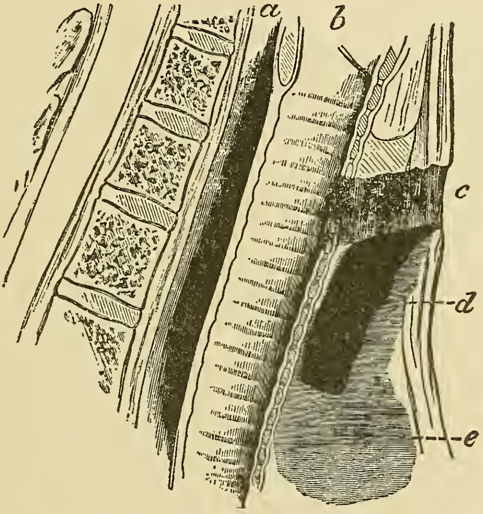


Fig. 21.—Diagram showing the abscess resulting from the "false passage" caused by von Bergmann. *a*, the gullet; *b*, the larynx; *d*, the false passage; *e*, the abscess. The diagram is *half-size*, and, of course, only shows the *side view of the abscess;* its depth through the neck, *i. e.*, its lateral extension is not apparent in this sketch.

of the palpable fact that matter could be literally *squeezed* out of the neck, that the pus came from the lungs! I need not dwell further on Bergmann's preposterous opinions on this subject than to point out that when, two months later, after the illustrious patient's decease, the parts came to be examined, it was clearly proved that no disease of the lungs or bronchial tubes had existed, except what developed a few days before death.

Our New Colleagues.

Shortly after Prof. Leyden's first visit to the Emperor he was appointed one of the regular attendants of His Majesty. Prof. Leyden's great clinical experience, and his careful studies in connection with alimentation, proved of the utmost importance, and I have no hesitation in saying that the extraordinary care and attention with which this distinguished physician regulated the nutrition of the illustrious invalid considerably prolonged his life.

Prof. Senator also proved a most valuable colleague. His wide therapeutical knowledge and practical experience proved of much service in the acute stage of the last attack. In obtaining the co-operation of these two eminent physicans, I felt that the great burden of responsibility, which before that had mainly rested on me, was much lightened.

Extension of the Abscess.

His Majesty remained in pretty much the same condition for some time. His temperature continued to be somewhat high, rarely falling below 101° Fahrenheit, and on one or two occasions rising to 104° Fahrenheit. Remedies were given with the view of reducing the fever, but they had little or no effect. His Majesty suffered a good deal from hiccough, which often prevented him from sleeping. During the day, however, he was still able receive visitors and officials, and he expressed a hope that the Queen's contemplated visit would not be put off.

On the 18th, as there was again some slight noise during respiration, Mr. Hovell removed the small tube which Bramann had introduced after Bergmann's failure, and put in a larger canula. The substitution was effected without the slightest difficulty, and was unaccompanied by either coughing or bleeding. There was no longer any doubt that an abscess had formed in the place where the "false passage" had been made, and that it was extending both downward and laterally. On the 20th, a large quantity of pus was coughed up during the day. It was not clear whether the abscess had burst into the trachea at its lower part, or whether the pus

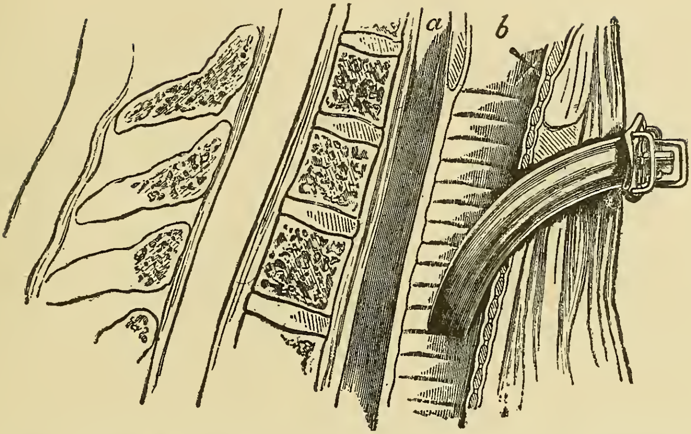


Fig. 22.—The last canula used. Owing to the destruction of the tracheal rings caused by Bramann's tube, the right-angled canula did not get enough support to hold it in position.

reached the interior of the trachea only through the surgical opening made for the passage of the canula. That a large portion of the pus found an entrance to the air-passages in this way was evident, but whether this was the only mode of entrance was not certain. Whether there was one large abscess or a number of smaller ones, von Bergmann having forced the canula in different directions in front of the trachea, could not be positively determined.

On this day I changed the tube in the presence of my colleagues for one of the same bore as the Emperor had been wearing before the fatal 12th.

Some Memorable Words.

In view of the serious aspect which the case was assuming, I thought it right to inform the Emperor that he was in a position of considerable danger, and I ventured to hint to His Majesty that if he had any matters to settle, it would be advisable for him to do so now. The Emperor received this communication with his usual perfect calmness, and shook me warmly but gravely by the hand, saying slowly, "I am much obliged to you for telling me. I hope I shall get better — for the sake of my people." I noticed that His Majesty made a slight pause after the word "better," as if he were thinking aloud. At that moment Frederick the Noble was no doubt thinking of the enlightened and far-reaching schemes for the internal development of Germany, which had been maturing in his mind, through all those years of conscientious preparation for his great office. The regret for the uselessness of it all was not for himself but for his people, who were to lose the blessing of his wise and beneficent rule almost before they had learned to appreciate it.

I believe it was on this day (April 20), that the Emperor made his touching remark to the Crown Prince: "*Lerne zu leiden ohne zu klagen.*" (Learn to suffer without complaining.) No one was ever better fitted to teach this lesson by his own example than this most patient of sufferers. Another story which was current about the same time, to the effect that the Emperor gave to the Court Chaplain Schrader a slip of paper bearing these words: "Do not pray for my recovery, but for my release," is entirely apocryphal. His Majesty was not aware that the distinguished divine had called at the Schloss till some hours after he had left.

Increasing Weakness.

No great change occurred in the Emperor's condition for some weeks. My notes chronicle slight oscillations of temperature, and trifling differences of appetite, etc., from day to day. Although the august patient was able to transact state business, to give audiences, to receive visitors, and to write his diary, it was impossible not to see that he was steadily, though very gradually, losing ground. The sudden variations in His Majesty's condition seemed to depend largely on whether the discharge of pus was abundant or scanty. As long as the abscess emptied itself freely the Emperor was comparatively well; on the other hand, whenever the matter was retained for a few hours the feverishness increased, and the illustrious patient felt languid and ill. But these slight and temporary fluctuations had little effect on the steady decline of health. One remarkable feature in the case was the sudden quickening of the respiration, which often occurred without any visible cause. The Emperor would all at once begin to breathe very rapidly—fifty and even sixty times a minute—and after some time the respiration would become much slower again. It was noticeable that the pulse was not accelerated on these occasions in anything like the same proportion as the breathing. This proves, as I have already said, that the quickening of the respiration was a purely nervous phenomenon. The breathing was generally more hurried when the illustrious patient was asleep than at any other time, and the sudden diminution of rapidity on his awakening was sometimes very marked. Thus, on one occasion I find that there is a drop at the time of waking from fifty-three to twenty, and on another from forty-four to eighteen respirations in the minute. The Emperor's sleep was, as a rule, much broken, lasting only for a couple of hours or so at a time. His appetite, as was to be expected from the temperature, was indifferent at this time; but when the fever began to decline a little (on April 25), His Majesty took solid nourishment with relish.

The Emperor received the Queen, who visited Germany at this time, on several occasions; he declared to me, after Her Majesty's departure, that he was sure her visit had done him much good.

How the Emperor was Nursed.

This seems to be a convenient place to describe the nursing arrangements. His Majesty had a large staff of attendants, but with the exception of the orderly, who was on duty in the sick room at night, there was no trained nurse among them. The Emperor had four personal attendants, two valets, and two jägers, besides his chief personal attendant Wetterling, who had been his soldier-servant almost since the time he joined the army thirty-seven years previously. Wetterling gave a general superintendence, administering the medicines and arranging about the food under my directions. One of His Majesty's valets had also been with him over twenty years, and another for a long period. His two jägers had been with him a shorter time—one only a few months—but whether they had been a longer or a shorter time in his service, and though some were more handy than others, they were all equally devoted to their beloved master. The Emperor was indeed a man whose soldiers would have shed their last drop of blood for him, and whose servants rather than neglect their duty would have fainted at their posts. The Empress herself took an active part in the nursing, showing a practical knowledge of the art equal to that of any trained nurse. Her Majesty had several times given excellent proof of her skill and gentleness in dealing with the sick and wounded in the military hospitals during the bloody campaigns of 1866 and 1870; and now, when her own gallant soldier husband was laid low, she managed the details of the sick room in a way that filled us all with admiration. Hitherto the assistance which the Empress had given us, though of the greatest value, was more of a moral than a practical kind. Often, indeed, when we doctors were losing heart, Her Majesty would cheer us up and stimulate us to fresh efforts by her courage and example; but now her struggles were really heroic. Often have I seen her wipe away her tears in the Emperor's ante-room, and then go in to him with a smiling face, bringing, as it were, a stream of sunshine into the chamber of suffering, and chasing the look of pain and weariness from the poor patient's countenance. Now Her Majesty took a more active part in the work, and showed herself full of devices for ministering to the Emperor's comfort.

The Question of Opening the Abscess is Considered.

I several times discussed with Mr. Hovell the propriety of making a counter-opening in the neck so as to let out the pus, but as I did not know the exact extent of the abscess, or whether there were one or more abscesses, and was not certain as to the mode in which the pus entered the trachea, I decided against any surgical procedure. Several other circumstances also led me to this decision: First, it was not at all clear whether, even if an external discharge was established, it would entirely prevent the flow of matter into the trachea, and in the event of non-success we should have had all the inconvenience of an external discharge as well as that which at present existed; secondly, the abscess as a rule emptied itself easily, and only occasionally, perhaps once in a week or ten days the orifice became obstructed for a few hours; thirdly, as it was certain that the illustrious patient was doomed, it seemed to me that it would be a mistake to carry out any operation, however slight. Had the abscess occurred in a case of acute disease I should, of course, have brought the question of an external incision under the notice of my colleagues, but being myself, for the above-stated reasons, averse to interference, I thought it better not to raise the point at a consultation.

Presents of Flowers.

When the Emperor began to recover, quantities of the most beautiful flowers were sent day after day from all parts of Germany. I have admired the lavish display of beautiful flowers and costly exotics in Paris and New York, but the splendid floral offerings now made to the Emperor exceeded anything I have ever seen. Many of the bouquets were from private individuals, but not a few of the best were sent by the societies of old soldiers which exist in such large numbers in Germany. Some came from school children in Berlin, and on several occasions violets and primroses were forwarded by poor people from England, who expressed their regret that their means did not permit them to send valuable flowers. These humble gifts gave the Emperor very great pleasure.

Bergmann Boycotts Me.

On April 26, on entering my sitting-room to be present at the morning consultation, von Bergmann handed me a note in which he declined all further intercourse with me except such as was rendered necessary by our attendance on the illustrious patient. The sequel of his action will be entered into more fully in Section II (p. 251). In the meantime I need only state that a day or two later, after some further amenities which I had no difficulty in tracing to their source, I was obliged to inform the Emperor that Prof. von Bergmann had shown fresh signs of hostility to me. I went on to say that, under these circumstances, though I did not wish him to be relieved of his duties, I thought it was necessary that an eminent German surgeon should be called in order to check any misrepresentation which Bergmann might make in the future. I suggested the name of Prof. Bardeleben, who shares with von Bergmann the direction of the surgical teaching in the University of Berlin. On the following day (April 29), the Empress informed me that she had received a letter from Prof. von Bergmann, asking to be relieved from further attendance on the Emperor. In the meantime I had written to Prof. Bardeleben, who accordingly took part in the consultation the next morning and remained in attendance till the end. Bergmann soon afterward had the bad taste to attack me in a communication which he sent to the Berlin Medical Society, because I had defended myself against the gross charges made against me by his journalistic friends, but he did not attempt to deny that he had failed to introduce the tube or that he had made a false passage. Against these miserable attempts at defamation may be set the following telegram which I had the pleasure of receiving some days later (May 10): "German liberal workmen from Charlottenburg and Potsdam, who are making an excursion together to-day in the Grünewald, thank you for the loving devotion and fidelity which you have exhibited at the bedside of our Kaiser. We assure you that your merits will not suffer in the eyes of any good and honest German in consequence of the shameless persecutions (*Hetze*) directed against you."

Then follow the names of a number of workmen.

Further Breaking-up of the Windpipe.

Meanwhile the work of destruction was going on in the trachea and parts around it. Even then there was no thickening—no extension of cancer to the tracheal opening. The breaking down of the tracheal cartilages could only be accounted for by the injurious pressure on them effected by the large- (14 mm. in diameter) mouthed orifice of Bramann's canula. On the night of 29th–30th April a flapping noise had been audible in expiration as if there were a loose slough at the orifice of the trachea. At seven o'clock in the morning the Emperor had a severe fit of coughing and brought up a large piece of necrotic tissue. After this the noise ceased and the breathing became quiet. As the windpipe was in such an utterly unhealthy condition, it had occurred to me that a tube of lighter material than silver would be likely to do less damage. I had therefore ordered a canula to be made of aluminium, and this was worn by His Majesty, except on one or two days now and then, till the end of his life.

Temporary Improvement.

At the beginning of May a considerable improvement took place in the Emperor's condition. He felt much better and regained strength to a slight extent; he was more comfortable during the day, slept better at night, and took more interest in what was going on around him. The vegetations around the tracheal orifice, which at the suggestion of Prof. Bardeleben had been treated with bismuth, had completely disappeared—a proof that they were not cancerous growths as had been positively stated by von Bergmann. The discharge of pus was still abundant. On May 5, I collected all that escaped between 8 A. M. and 8 P. M., and found that it amounted to three ounces. As the discharge was generally more copious at night than in the day, it follows that an estimate of six ounces would be rather under than above the average secretion during the twenty-four hours. Such a quantity could not come from a cancerous larynx. Besides, the matter was thick and greenish-yellow in color—in fact, laudable pus—very different from the sanious putrescent fluid, full of miscellaneous débris, that comes away from a cancerous ulcer. In the present instance there could be no question that the source of the discharge was a large abscess-cavity in the situation of Bergmann's "false passage." A further proof of the abundance of the discharge is supplied by the number of times the canula had to be cleaned in order to prevent its becoming stopped up. Thus I find in my notes of this period such entries as "canula cleaned eleven times," "seventeen times in the night," and so forth.

On May 12, His Majesty felt some pain in swallowing, which was found to be due to aphthous spots on the uvula and pharynx. On the 14th, fresh vegetations began to form, and in spite of all treatment, increased in size, till at the end of a fortnight they had coalesced into a single growth about the size of a large date, which formed a kind of collar round the whole of the tracheal orifice, except at its upper margin. On June 8, these vegetations began to get smaller again, and they gradually shrank, so that at the time of the Emperor's death they were no longer visible.

A Passing Gleam of Sunshine.

On May 16, His Majesty went into the park for the first time for a month. The morning temperature on that day was 99·4°, whilst in the evening it was 99°. The difficulty of swallowing had almost disappeared, and the illustrious patient was making gratifying progress. On the 17th, he was in the park again for several hours. He sat on a chair for some time and afterward drove in his pony-chaise, occasionally walking a few steps. A tent had been erected on the lawn and a rug was placed at its entrance. Late in the afternoon the pony shied at this rug, and reared so much that he almost fell back on the Emperor. Everybody except the illustrious patient himself was greatly alarmed. It was only on my pointing out that violent shaking might injure his throat that His Majesty consented to have the pony taken out of the carriage, which during the rest of the evening was drawn by two of the attendants.

The Emperor's Fondness for Music.

The Emperor spent most of the next day also in the park. He drove to the door of the chapel and listened for a long time to the choir which was practicing the music to be sung at Prince Henry's wedding. I had another opportunity not long afterward of observing the Emperor's fondness for music. At Friedrichskron one day in the early part of June the choir of the Church of the Twelve Apostles sang several hymns. His Majesty sat in the next room but one to the Muschel Hall in which the choir was, but the doors were open and the beautiful voices of the eighty singers constituting the choir were very distinct. His Majesty was very much affected by the singing; in fact, I noticed that during one of the hymns he could not restrain his tears. I procured him a little wine and water, and with his usual determination he walked to the entrance of the Muschel Hall and bowed his thanks to the singers.

On May 19, His Majesty drove outside the palace grounds for the first time since his recent attack. The people were more enthusiastic than ever, and when he came home he felt so well that he insisted on remaining in the park for some time. On the 21st, His Majesty drove into Berlin again, and on the following day he drove out with the Empress. On the 23d, the Princess Irene was expected late in the evening, and His Majesty was anxious to sit up to receive her, but as I knew that the following day would be a fatiguing one for him I persuaded him to retire to rest.

The Wedding.

On the 24th, the Emperor, who had had a good night, rose early in the morning and spent some time with Prince Henry and his bride. His Majesty went to the Blue Gallery, and was much disappointed to find that, thinking he would not be able to be present, the civil contract had been signed in his absence. He afterward attended divine service in the chapel. The brisk way in which the Emperor rose to his feet was noticed by many of those present, but most people thought the illustrious invalid looked much shattered. The great effort which he had made to appear as well as possible greatly fatigued him, and he could scarcely take any lunch. Late in the evening, however, he appeared much better, and enjoyed two hours in his pony carriage in the park. His temperature at 5 o'clock was 101·1°. It had not been so high as this since May 3. In the evening, however, it fell again to 100·6°.

The Sky again Overcast.

On the next day the Emperor showed signs of fatigue and depression, though he did not complain. From this day (May 25) I reckoned the commencement of the final decline in His Majesty's health. He was never so well after Prince Henry's wedding. Some days before that event, however, there were signs that the original disease in the larynx was beginning to disseminate itself in adjacent parts. On May 20, a round nodule about half a centimetre in diameter, was noticed under the skin about an inch above the inner end of the right collar-bone. It was movable and moderately hard, and the skin over it was of natural color and appearance. This nodule gradually increased in size, and in the early part of June its surface became slightly inflamed. It was judged to be a secondary point of malignant infection, and as a matter of fact it was found on examination after death to contain some cancerous elements.

On May 26, the Prince of Wales accompanied the Emperor in a drive through the Thiergarten to the Belle Vue, where he too took leave of His Majesty for the last time. On the following day the Emperor showed signs of fatigue and drowsiness, and seemed once more to be gradually losing the energy he had lately regained. On the 29th, however, he was roused by an incident quite outside the ordinary run of his life for a long time past. His Majesty inspected three regiments of Guards, which marched past under the command of the Crown Prince. The Emperor, who was wearing his helmet for the first time since his accession, sat in his victoria. He was greatly moved. Whether from the weight of his helmet or from excitement, the Emperor's head was bathed in perspiration, although the day was not at all hot. Immediately after the inspection I got him some wine, which seemed to revive him. I said to His Majesty, "I am afraid, sir, it was rather tiring for you seeing the troops march past." He replied, "No, but it is the first time I have seen my soldiers." The Emperor seemed thoughtful for the rest of the day, and indeed, under the circumstances, there was sufficient matter for sad reflections. This inspection certainly seemed to try the Emperor more than anything which had occurred for some time.

Visit to the Mausoleum.

On May 31, the Emperor, who had driven into Berlin the day before, was fairly comfortable. In the evening His Majesty asked me if he might pay a visit the next day, before leaving Charlottenburg, to the mausoleum; thinking, however, that the day would be a fatiguing one, I suggested his going that evening. We silently wended our way to the little chapel, and the Emperor slowly mounted the steps attended by one of his faithful jägers. I remained outside, and, whilst waiting, my thoughts naturally turned to the Emperor William, and it was a source of satisfaction to me to remember that he had expressed himself as entirely satisfied with my treatment of his beloved son. Of this I had received the assurance both from Prince Radolin and General Loe. The latter gentleman told me in San Remo in the previous autumn that the deceased monarch, in the presence of several senior officers, had expressed his complete approval of what I had done; and the Hof-Marshal gave me similar testimony—in this case, I believe, by the express desire of the Emperor William.

In a short time His Majesty descended the steps of the mausoleum, looking sad and weary. Shortly afterward he said to me: "I shall go to bed early to-night. I feel tired."

CHAPTER XXII.

THE EMPEROR'S LAST STAY AT POTSDAM.

It had been arranged that on June 1 the Emperor should be removed to Potsdam, which from long residence there he looked upon as his natural home. Before starting, however, there was a little difficulty with the canula, and as the incident was an almost exact *replica* of the unfortunate episode of April 12, with the part of Bergmann left out, it may be worth while to relate it. I had changed the tube in the morning for a shorter one in the presence of all my colleagues. Half an hour after their departure the Emperor's breathing became slightly tracheal. I at once changed the inner tube, but in five minutes His Majesty sent for me again, when I found that there was a slight noise on inspiration. As we were leaving for Potsdam in a few minutes there was no time to send for Bardeleben, and as I thought it would be unadvisable to allow the illustrious patient to travel with the new tube in his throat, I replaced the one he had formerly been wearing.

Now I might have easily magnified this little incident, and represented myself as having rescued the Emperor from impending suffocation. The circumstances were almost exactly similar to those of the fatal occasion on which Bergmann had done such mischief. In neither case were there any symptoms of the least urgency; there was only a trifling degree of dyspnœa, and the breathing was accompanied by a slight sound.

The Emperor's Last Journey.

The Emperor drove through the grounds in his pony-chaise to the banks of the Spree, which on one side forms the boundary of the Charlottenburg park, and embarked on board the yacht Alexandra, which was to take him to Potsdam. Thousands of people had assembled on the opposite side of the river, and when His Majesty appeared their enthusiasm knew no bounds; a strong body of mounted police had been stationed to prevent the crowd approaching too near the river, but in the excitement of the moment the people pressed forward to the very brink of the stream, and it was very fortunate that some were not precipitated into it. When the little yacht steamed off, a large part of the crowd ran by the side of the river. On reaching Spandau, which was gaily decorated, thousands of school children were seen to be assembled on the banks to greet their sovereign, and on passing under the bridge, flowers came down in such a deluge that it took two of the sailors half an hour to gather them up. We arrived at Gleinicke bridge at about one o'clock, and found a number of carriages which conveyed us to Friedrichskron. The Emperor was very little fatigued, ate a good luncheon, slept for a few hours, and then took a drive in his pony-chaise in the park.

Fresh Complications.

For the next three or four days there was no change in His Majesty's condition. He slept fairly well (for him), and was able to go out a good deal when the weather permitted. He was, however, more easily fatigued than he had hitherto been, and it was only too clear that his life was ebbing away *sensim sine sensu.* On June 6, the temperature, which for some time previously had averaged from 99° to 100° F., rose to 102·4° F., and there was a great deal of coughing, owing to the quantity of matter which found its way into the windpipe. That night he hardly slept at all, and the next morning he was very weak. He insisted, however, on getting up about 11.30, and giving audience to General Albedyll.

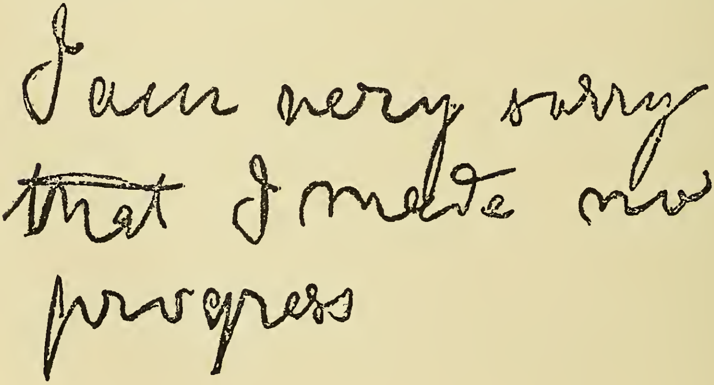
On the evening of the same day (June 7) it was noticed by the attendant that whilst the Emperor was drinking some milk a small quantity of the liquid came out through the canula. During the night the same thing was repeatedly observed by Prof. Krause, who had taken the night duty since the 4th, as Mr. Hovell had been obliged to return to England on account of the sudden death of his father. At 6.30 on the morning of the 8th, Krause came to my room and said, "What you have so often feared has now happened; a fistula has formed between the larynx and the œsophagus." He then told me what he had witnessed during the night, adding that once or twice nearly the whole of the milk which the Emperor had taken into his mouth had run out through the tube. At the morning consultation, in which, besides Prof. Krause, Dr. Wegner and myself, Profs. Leyden, Senator and Bardeleben took part, I remarked that although the symptoms seemed to point to the existence of a laryngeal fistula, I was nevertheless not at all sure that the passage of liquids into the larynx was not merely the result of the imperfect action of the epiglottis. I expressed the same view to my colleagues on several occasions subsequently. The argument in favor of this theory was the rapidity with which liquid food escaped from the pharynx into the larynx, and thus through the tracheal opening, whilst on the other hand the idea that there might be a laryngeal fistula was supported by the fact that occasionally His Majesty was able to swallow without any liquid passing into the larynx, a circumstance tending to show that the fistulous passage occasionally became closed.

The complication in any case was a most serious one, for in the weak condition of the Emperor anything which interfered with his taking a sufficient amount of nourishment would certainly bring his life very speedily to a close. At this time he was still able to take a fair quantity, as the following diet-sheet (for June 8) will show: 10 A. M., about half a plateful of very thick porridge; 1 P. M., four eggs beaten up in wine; dinner, some *purée* of chicken, with a little mashed potato; in the afternoon a large piece of cream ice and three eggs; no supper, but at 10 P. M. a large plateful of shaped boiled rice. In the night some rice, cocoa, and eggs.

With the view of preventing the fluids which were swallowed from trickling down the windpipe, it was determined to use a tampon-canula. This accordingly I put in on the 9th in the presence of Profs. Bardeleben, Leyden, Krause, and Dr. von Wegner. His Majesty slept better the next night than he had done for some little time; he was able to take eight eggs in the course of it, and said in the morning that he felt better.

No Progress.

Seeing that the Emperor was sinking day by day, I thought it my duty on the morning of June 10 to inform him that he was not doing well. I said to him: "I am sorry to tell you, sir, that you are not making progress." His Majesty replied, "I feel pretty well to-day." Nothing more was said, but some hours afterward the Emperor handed me a slip of paper, on which he had written—



I am very sorry
that I make no
progress

These pathetic words* showed me that the dying monarch had fully understood the meaning of what I had said to him.

On the following morning (June 11), as the breathing had become somewhat tracheal, I introduced a longer tampon-canula. As, however, air did not come quite freely through the tube, I removed it, and then passed it in again with the greatest ease. In doing so, I felt that, about two or two and a half inches below the tracheal opening, there was a slight projection forward of the posterior wall of the trachea, and by directing the lower end of the canula forward, and fixing the instrument in that position, I overcame the slight obstruction and the breathing became quiet. The discharge of pus had now become much less profuse, but the tube still required to be cleaned pretty frequently. During the day a good deal of fluid was seen to escape by the side of the canula after swallowing; the subglottic region was therefore tightly plugged with five small pieces of sponge, which partly checked the leakage through the wound.

Dying in Harness.

Even at this time the Emperor battled with the prostration which was at last beginning to paralyze his hitherto indomitable energy. On this very day (June 11), he was writing his diary and signing documents nearly all the morning, and the amount of work which he got through was wonderful under the circumstances. I always noticed that when His Majesty felt worse than usual, he worked harder than ever; he had an almost overwhelming sense of the duties of his position, and seemed resolved almost literally to die at his post. I never discouraged the illustrious patient from working, as I knew that the disappointment he would have felt at being compelled to be idle, would have more than counterbalanced any good he might otherwise have derived from remaining quiet. Moreover the work itself seemed actually to sustain him, and it no doubt was useful in diverting his thoughts from his own condition.

Artificial Feeding.

On June 12, Mr. Hovell, who had returned from England the day before, informed me that the Emperor had been able to take very little food during the night, and that a great part of what he did take escaped at the side of the canula. At the consultation afterward, it was unanimously agreed that artificial feeding had become necessary, and I was requested to undertake it. I pointed out to my colleagues that, owing to the relaxed condition of the posterior wall of the trachea caused by the exfoliation of the cartilages in the upper part of the trachea, and to the probably softened state of the œsophageal walls, the passage of a feeding-tube would be attended with considerable danger, but it was decided that the operation was imperatively indicated, whatever the risk might be. Accordingly at about 11 o'clock that morning, I passed an œsophageal tube, and introduced about a quart of milk through it. His Majesty was again fed in the same way at 2 P. M., half a litre of condensed milk with some cream and whisky being given on this occasion. During the day I took an opportunity of pointing out to His Majesty that he was now almost entirely dependent on the feeding-tube for his supply of nourishment, and that therefore if any difficulty should arise interfering with the passage of the tube, he would be reduced to a condition of the most imminent danger. The Emperor merely bowed affirmatively on hearing this statement, but asked no questions. In the evening the Emperor wished to go out for a drive, but I thought it better for him to remain on the balcony. At 11 o'clock he was again fed. In the middle of the day the breathing became tracheal, and the supply of air diminished. This difficulty gradually increased in the evening, and though Prof. Bardeleben was expected, the breathing became so bad that I thought it desirable to endeavor to alter the position of the tube. After inserting the pilot, I tilted its point forward, and in this way succeeded in disengaging the lower end from a fold of the mucous membrane covering the posterior wall of the trachea which partially blocked up the lower orifice. The breathing at once became easy. I retired to rest at 3 A. M., leaving Mr. Hovell on duty. There had been scarcely any discharge of pus for several days; but on this day (June 12) some very offensive matter escaped. From this time there was hardly any secretion of pus, but a good deal of mucus continued to come through the canula.

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* I am not sure whether the word *have* is omitted before "made," or whether His Majesty meant to write *make* instead of *made;* the former expression would be a literal translation of the German phrase.

On the 12th, the Emperor was fed with the tube three or four times during the day. In the course of the morning I saw the servants making extra preparations on the balcony, and was told that this was because the King of Sweden was expected very soon. I had thought that the King's visit had been put off on account of the Emperor's condition; but it was now too late to intercept the carriages. Besides this, I knew that nothing could now make any difference to the august sufferer. His Majesty was rather breathless, but he was able to receive the King; the interview lasted only a few minutes. Before he left Friedrichskron I had the honor to be presented to King Oscar, who asked me what I thought of the Emperor. I replied, "It is scarcely necessary to point out to you, sir, that the Emperor is in a most critical condition, from which I think it is almost impossible for him to rally; should he, however, get over this attack, his life might be spared for a few weeks."*

The Beginning of the End.

At 3 A. M., on this day (June 13) I noticed a change in the Emperor's condition, which showed that the end was approaching. There were signs that inflammation of the lungs had evidently set in, and I knew that His Majesty's sufferings would soon cease. I had promised to inform the Empress at once if any change occurred, and accordingly at 4 o'clock I knocked gently at her bedroom door. She was not asleep, and answered me immediately. As soon as possible the Empress was by the side of her dying husband, and from that hour she never left his bedside for more than a few minutes at a time. The Emperor remained surrounded by the members of his family throughout the day. As he was very restless, and had not slept during the night, I gave him a mild sedative draught. Soon afterward he fell asleep and slumbered till 6.30, when he said he felt hungry, and asked me to feed him. I administered a quart of milk with a little whisky through the tube. He received nourishment in this manner twice again during the day. He showed very little interest in general matters, but was very particular to have his tube changed directly there was the least sound in breathing.

Thoughtful for Others to the Last.

I have said more than once that the Emperor was the most considerate of men, and I cannot forbear relating a striking instance of this quality which occurred within a few hours of his death. My sitting-room was close to His Majesty's room, but in order to reach the latter I had to pass through three rooms. In order to get to his bedside more quickly I generally used to go along an outside balcony so that I had only the ante-room to pass through. Just before daybreak on the morning of June 15 it was dull and chilly. In consequence, I suppose, of exposure to the air in going by the balcony I became a little asthmatic. Whilst I was changing his canula on two or three occasions during the night, the Emperor put his hand lightly on my chest and looked up at me with a glance of earnest sympathy, thus mutely expressing his regret that I too was suffering. Those who have much to do with the sick know well how prolonged illness often breaks down the natural framework of the character, making even those who in health were utterly unselfish come to be regardless of anything but their own suffering.

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*I should not have thought it necessary to repeat the subject of this interview had not the "reptile" press recently (September) recommenced on its old system of misrepresentation, and printed a most false and entirely ridiculous account of my interview with the King of Sweden.

Frederick the Noble in this, as in everything else, rose above the ordinary standard of humanity; even in the agony of death he remained true to his own generous nature.

Last Scene of All.

At 4 o'clock I called Mr. Hovell, and at 5 I tried to snatch a few minutes of rest in an armchair. An hour later, however, the Emperor complained of a feeling of sinking, and signified his wish that that I should give him some nourishment. After this he seemed to be somewhat better for an hour or so, and a little later he passed into a deep sleep, which was, however, broken from time to time by the irritation in his throat.

In order not to intrude on the grief of the sorrowing family, at 10 o'clock I took up my post in the room immediately adjoining the Emperor's bedroom, paying a short visit to the Emperor every few minutes. At 11 o'clock the eyes of the poor patient, which had languidly followed every movement of the Empress, became fixed, the intervals in drawing breath became greatly lengthened, and soon after 11 A. M. I had the sorrowful duty of announcing to the Empress that life was extinct. With his broken-hearted family, and several of his devoted servants kneeling round him, Frederick the Noble breathed his last.

Thus passed away the noblest specimen of humanity it has ever been my privilege to know. Of his military achievements and his political wisdom it would be presumption for me to speak. During his life his natural reserve and the circumstances in which he was placed led him to efface himself to a great extent, so far as the practical conduct of affairs was concerned. He could not, however, conceal his kindness of heart, which thus came to be *the* leading feature in the public estimate of him. Only those whose official position brought them into personal contact with him, and a chosen few who were permitted to enjoy his confidence, knew that Frederick the Third was a man of commanding intellect. His courage in the field is known to all the world; his compassion for suffering and misfortune, and his chivalrous forbearance toward the weak are acknowledged most freely by those whom he conquered in war. It was my lot to know him under very different circumstances; to see him face disease and suffering with the same unostentatious heroism as he had confronted the enemy in the battle-field; to see him whilst standing in the very shadow of death, still eager to do what he could for the people over whom he ruled. Only those who had the privilege of constant intercourse with the Emperor Frederick know how much poorer the world is for his death. No one could know him even slightly without loving him; no one could be more intimately acquainted with him without reverencing him as one of the most large-minded and noble-hearted of men. Though naturally somewhat reserved and dignified, he loved to talk freely with all classes of people. One thing which particularly struck me in him was the absolute genuineness, the transparent honesty of the man. He never affected a knowledge which he did not possess, but was modestly deferential to those whom he thought better informed than himself. Though active when the necessity for action arose, his nature was contemplative, and his mind essentially judicial. The manliest of men, he had the gentleness and purity of soul of the purest of women. He has gone down to his grave leaving us the memory and example of a stainless life and a beautiful death.

CHAPTER XXIII.

THE EPILOGUE.

A Trap is Laid for Me.

After the Emperor's death, having had no rest for nearly 60 hours, I threw myself on my bed about 2 P. M.; but I was shortly afterward awakened by one of the adjutants, who informed me that the Emperor and Prince von Bismarck desired to see me. I quickly arose and accompanied this gentleman to the young monarch, whom I found sitting with the Chancellor in what had previously been the adjutant's room. His Majesty* received me courteously, and said that Prince Bismarck would like to speak a few minutes in conference with me. The Chancellor thereupon invited me to retire with him into an inner room, where he suggested that I should draw up a brief report on the case of the Emperor Frederick. I at once expressed my readiness to do so. The Chancellor then said, "Will you do so before you leave?" I replied, "Willingly, your Highness. I shall leave on Monday, and I will certainly draw up the document you ask for before then."

After this conversation I was extremely surprised the next day when an official from the Haus-Ministerium called on me at one o'clock and asked for my report. I told him I had not had time to draw it up. He said, "If you will dictate it to me I shall be happy to take it down;" but I pointed out that such an important document could not be dashed off in that way. The official then remarked that it was most important it should be prepared immediately, as the ministers were waiting for it. I then said, "In that case I will write it for you," and it was arranged that he should wait in the palace for the document. Within half an hour I drew up a report to the following effect:

"SCHLOSS FRIEDRICHSKRON, June 16, 1888.

"It is my opinion that the disease from which the Emperor Friedrich III. died was cancer. The morbid process probably commenced in the deeper tissues, and the cartilaginous structure of the larynx became affected at a very early date. A small growth which was present when I first examined the late Emperor was removed by me by several endolaryngeal operations, and though all the portions taken away were submitted to Prof. Virchow, he was unable to detect in them any evidence of the existence of cancer. Examinations of the sputa made at the beginning of March by Prof. Waldeyer, however, led that pathologist to believe that cancer was then present. Whether the disease was originally cancerous or assumed a malignant character some months after its first appearance, it is impossible to state. The fact that perichondritis and caries of the cartilages played an active part in the development of the disease no doubt largely contributed to make it impossible to form a decided opinion as to its nature till quite recently.

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* Among the thousand-and-one incorrect statements which appeared in the papers, there was one to the effect that I had asked for an audience of the new Emperor, who had refused to see me. I think it right to state here that I never sought for an interview of any kind with His Majesty.

"MORELL MACKENZIE."

"In so far as my observations since last August permit me to form an opinion, I concur entirely with Sir Morell Mackenzie's views.

"T. MARK HOVELL."

When I proceeded to find the official, I was surprised to discover him in earnest conference with Prof. von Bergmann. I handed him the report and withdrew. Half an hour later, Dr. von Wegner looked in on me in my sitting-room and said, "A *post-mortem* examination is going to be made. Do you care to come?" I answered, "Do I care to come? How can you ask such a question?" I immediately called Mr. Hovell and went with him to the room where the autopsy was going to be performed.

Miscarriage of the Plot.

I now saw why such extraordinary pressure had been brought to bear on me to make me send in my report on the case at once. It was hoped that being under the absolute conviction that there was to be no *post-mortem* examination, I should be entrapped into making some equivocal statement as to the nature of the disease. After I had thus committed myself, the autopsy would be made and the existence of the cancer clearly proved to my everlasting discomfiture. It was a neat enough little plot in its way, but its authors had left two rather important matters out of account which made their amiable intention fail of its effect. In the first place, since Waldeyer had told me of the result of his microscopic examination I had frankly accepted the cancer diagnosis as definitively established. It was not at all likely therefore that I would now stultify myself by quibbling about the matter. In the second place, although it appeared to be taken for granted, quite gratuitously, that I did not wish for an autopsy to be made, I had, in fact, myself proposed it. A few hours before the Emperor's death, I had ventured to point out to the Empress that it was desirable that at least a partial *post-mortem* examination should be made, in order to ascertain the exact situation and extent of the disease. Her Majesty was very unwilling to consent to this; but at last promised that she would allow whatever I thought necessary to be done. When the Emperor had breathed his last, however, Her Majesty, in the first outburst of her grief, which up to that moment she had heroically kept in check, turned to Dr. von Wegner and begged him to promise that her beloved husband's body should not be touched. The Emperor William II. expressed his concurrence with his mother's wishes as to this matter, and gave orders that they should be respected. On the following morning, however, strong representations were made to His Majesty by General von Winterfeld and others, at the instigation of Prof. von Bergmann, that as the Prussian law required that the cause of death should be *constatirt*, it was necessary that a *post-mortem* should be made for that purpose. As far as the legal aspects of the case were concerned this was mere sophistry. The cause of death had already been certified (*constatirt*) by myself, and von Bergmann or any of the other doctors could have also given a certificate, if it had been thought desirable. The Emperor William II., however, not perceiving the real motive of the great desire for a *post-mortem* examination, yielded out of scrupulous regard for the law. I have no doubt that Prof. von Bergmann was sorely disappointed at the collapse of his little scheme.

REPORT OF POST-MORTEM EXAMINATION.

The *post mortem* examination was made by Prof. Virchow in the presence of Prof. Waldeyer, who, during the investigation carried out by Virchow, cursorily examined some of the parts removed from the body. There were also present Drs. von Wegner, Bardeleben, Leuthold, von Bergmann, Bramann, Mr. Hovell and myself. Profs. Leyden, Senator, and Kraùse, who had attended the Emperor up to the day of his death, were not invited, and, as already stated, I was only told of the *post-mortem* just before it was made.

Although the autopsy was carried out with care, it was necessarily very incomplete, and unfortunately somewhat hurried by Count Stolberg-Wernigerode, who several times reminded us that it was necessary to finish the examination as soon as possible, as it had been arranged that the lying-in-state should take place within an hour of the commencement of the autopsy.

The (tracheotomy) wound and an incision over the right carotid artery (made for the purpose of injection) had been stitched up, the cavity in the front of the neck having been previously packed with cotton-wool and bismuth. On removing the stitches "from the stitched-up linear wound 6½ cm. long," after the removal of the large quantity of cotton-wool and bismuth, the report says: "*A cavity is left, measuring* 5 *cm. in depth and almost as much in length, the opening of which, after removal of stitches, gapes to the extent of* 2½ *cm.*" An incision was made through a nodule situated in the skin, and partly in the subcutaneous tissue on the right side of the neck a little below and external to the tracheotomy wound. The larynx, as well as the upper portion of the trachea and œsophagus, were ligatured and removed. Nearly the whole of the larynx was destroyed, its place being occupied by a large, flat gangrenous ulcer; the epiglottis and ary-epiglottic folds alone remained. At the base of the epiglottis, on the left side, was a nodule as large as a cherry, and near it were several similar nodules of various sizes, but all much smaller than the first one. The mucous membrane of the trachea immediately below the (tracheotomy) wound was free from ulceration and scars. The lower part of the trachea and its bifurcation were not examined. The lungs appeared outwardly quite healthy "and everywhere full of air, down to the lowest edge of the lower lobe," but there was some hypostatic congestion, and there were a number of minute collapsed patches in the bases containing dilated bronchial tubes, partly surrounding which were layers of extravasated blood. On section, a large number of *foci* were found in the interior of the lower lobes, some of which contained a material resembling pus, whilst in others the whole mass was still solid. Scattered throughout the upper lobes of both lungs were found similar very pale *foci*, in which a large number of yellowish nodules were closely packed together. On opening up the œsophagus behind the cricoid cartilage, there was found a collection of greyish-brown secretion, and on removing this there was no trace of perforation. On the left side of the neck, close to the jugular vein, was a lymphatic gland about as large as a pigeon's egg, which in its interior showed a medullary-looking yellow spot. On slitting up the bronchial tubes they were found dilated throughout with thickened walls, the mucous membrane lay in thickened folds, and was covered with discolored debris.

Owing partly to the fact that the cavity in the tissues in the front of the neck had been filled up with cotton-wool and bismuth, and partly to the circumstance that the purulent secretion had ceased during the last three or four days of the Emperor's life, there was nothing to call special attention to the existence of the abscess, the general situation of which Mr. Hovell and I were easily able to identify.

In consequence of the lower part of the trachea not having been examined, the question as to how the pus during life reached the interior of the trachea, viz., whether by merely welling upward, and entering by the (tracheotomy) wound, or by passing through one or more fistulous tracks between the tracheal rings, was unfortunately not determined.

Profs. Virchow and Waldeyer subsequently made a microscopical examination of particular sections taken from the body of the late Emperor, and the following is an epitome of their report. The nodule at the base of the epiglottis contained an alveolar structure with epidermoidal contents, among which were nest-cells. The cutaneous nodule removed from the neck also contained nest-cells. The lymphatic gland, however, showed the highest degree of change, the normal structure being "replaced by a loose alveolar tissue, the spaces of which are closely filled with epidermoidal cells having large nuclei." In the *foci in the lungs* were found thick clusters of pus cells, *but no cancer cells.*

Another Calumny Refuted.

One other point I must touch on before bringing this narrative to a close. Among the many false charges which have been brought against me in connection with this case, there is one which for obvious reasons I could not take any notice of while the Emperor was still alive. It was said that I deliberately deceived him as to his condition, and buoyed him up with false hopes, leading him to believe that he would recover. Now, as to the first point, I will frankly say at once that I did not ever say bluntly to the Emperor, "You are suffering from cancer, sir; you are a doomed man." I did not do so in the earlier stages of his malady, because the nature of the case appeared to me to be doubtful, and it is a cardinal rule of medical practice not to communicate suspicions of that kind to the patient, even if they seem well-founded. At a later period, when the case had assumed a more serious aspect, my readers will recollect that I was perfectly open with the illustrious patient, who thanked me for being so frank with him. (See p. 141.) Prof. von Schrötter afterward made a formal communication to the Crown Prince, on behalf of us all, in which he clearly conveyed what was thought to be the nature of the disease.

What the Emperor's own inmost thoughts were as to his condition and prospects I am quite unable to say. For a very long time before his death, he asked no questions except as to what I may call the non-essential features of his case, such as the pulse, the temperature, etc. Though fond of conversation, and a most delightful companion, he was always extremely reserved about himself. Though I was thrown into such intimate contact with him for so long a time, I know less about the real state of his mind with regard to his own case than I do about almost any other patient whom I have had under my care. It may be that he hoped against hope, but he never spoke either of his hopes or fears to me.

It must be remembered too that the Emperor had had far greater opportunities of hearing the truth—or what was supposed to be the truth—about his condition than fall to the lot of ordinary patients. Soon after the commencement of his illness Gerhardt's opinion as to its nature had reached his ears.. He was a man of heroic fortitude, and not at all likely to brood over fancies, but so terrible a suggestion must necessarily have left a lasting impression on his mind. Such an idea cannot be thrown off by an effort of will; *hæret lateri fatalis hirudo.* The Prince's own question to me when I mentioned the unfavorable change which had taken place (p. 141), shows that the notion of cancer was always present to him. He was in no way misled by me as to the nature of his complaint. I told him honestly, exactly what I thought when the occasion arose, and I treated him precisely as I should wish to be treated myself under similar circumstances.

Consoling Reflections.

In looking back on this sad case there are one or two matters which will always be a source of deep satisfaction to me: One is that through the mild and painless operations performed by myself the dangerous methods recommended by Gerhardt and von Bergmann were prevented, and that I thereby not only prolonged the life of the Emperor, but also saved him much suffering. The other point which affords me some consolation is that I was able to prevent His Majesty suffering any actual pain during the long course of his distressing complaint. Even in February, when he was put to so much trouble and inconvenience, when he passed weary days and sleepless nights, whilst von Bergmann and Bramann were in charge of the case after the performance of tracheotomy, the Emperor experienced no actual pain. Except at the moment when von Bergmann made the "false passage" and forced his finger into the wound, I do not think he ever had a moment of severe pain. Occasional slight neuralgia in the head and mild muscular rheumatism were his worst troubles in this respect.

SECTION II.—CONTROVERSIAL.

CHAPTER XXIV.

THE TRUTH ABOUT THE PROPOSED OPERATION.

Theses Stated.

I propose to show in the first part of this section —

(*a*) That the operation of thyrotomy *(Laryngofissur)*, which it is stated it was proposed to perform on the Crown Prince in May, 1887, is not free from risk as is pretended by von Bergmann, but, on the contrary, is a dangerous procedure, soon leading to death.

(*b*) That the proposed operation does not afford a fair prospect of eradicating a malignant growth, but, on the contrary, is most frequently followed by recurrence.

(*c*) That the presence of cancer was not ascertained even with approximate certainty until November, 1887, if indeed it really existed before that date.*

In the second part I shall briefly consider some of the individual reports contained in the pamphlet entitled, *Die Krankheit Kaiser Friedrich des Dritten.* (" The Illness of the Emperor Frederick III.")

PART I.

I shall now proceed to prove my first proposition (*a*). *That the operation of thyrotomy* (*Laryngofissur*), *which it is stated it was proposed to perform on the Crown Prince in May*, 1887, *is not free from risk as is pretended by von Bergmann*, *but*, *on the contrary*, *is a dangerous procedure*, *soon leading to death.*

The Danger of the Operation.

Prof. von Bergmann maintains that the operation which he was about to perform is free from danger, and he states that he has performed it seven* times successfully. He does not, however, give any details of these operations, nor does he even say that they were done for cancer. Vague statements of this kind are of no value whatever, nor are they accepted by compilers of surgical statistics.

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* It must not be forgotten that even in November the microscopic evidence was still wanting, and that it was not till February, 1888, that the presence of cancer was conclusively proved.

Prof. von Bergmann further states† that there appeared in the *Centralblatt für Laryngologie*, since its publication four years ago, reports of fifteen cases of thyrotomy (*Laryngofissur*), only one of which had proved fatal, and that in this instance death was due to diphtheria. Such a statement as this is in the highest degree misleading. Anybody not already aware of Prof. von Bergmann's reckless method of making statements which have but slight foundation in fact, on reading this sentence would suppose that all these fifteen patients had recovered from cancer by means of the operation, except one. It will scarcely be believed that the truth is almost exactly the reverse. Such a number of inaccuracies are contained in von Bergmann's statement that they require to be set forth in detail. The operation was actually reported in the *Centralblatt* no less than thirty times! The disease, however, was cancer only in ten cases. Of these ten cases only five patients survived the immediate effects of the operation, and only one patient (Billroth's) remained free from the disease for over two years. In the twenty other cases in which the operation was performed for non-malignant disease, thirteen were papillomata, the large majority of the patients being children from two to eight years old. There was one case of polypus, one of œdema of the larynx, one of membranous occlusion, two of cicatricial stenosis, one of rhinoscleroma, and one of tuberculosis.

As regards the non-cancerous cases, though only two died shortly after the operation, I have no doubt it would be found on inquiry that repeated subsequent operations had to be performed on many of these patients, and that only a very small percentage can be shown to have made a complete and permanent recovery. It must not be forgotten, also, that in the case of children over three years of age suffering from benign growths, the little patients underwent a dangerous operation, when they might have been cured by one which presented no risk whatever.

But to return to the subject of the ten malignant cases with which alone a fair comparison can be made, it must be remarked that they are all actually contained in my tables! (See pp. 266, 268 and 270.) Readers will therefore be in a position to judge of the value of the assertions of von Bergmann, and of his successful cases culled from the pages of the *Centralblatt!*

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* *Op. cit.*, p. 17.

† *Ibidem.*

In Table No. 1, p. 266, will be seen a collection of twenty-two cases of thyrotomy, six of which ended in *death directly from the operation*, on or before the 11th day. Of the remaining seventeen patients, ten had died* when the report was published, three suffered from recurrence of cancerous disease, and must therefore be looked upon as having died (though not actually dead when their cases were reported), two cases were published too soon after the operation to be of value for statistical purposes, and two recovered. That is to say, in twenty-two cases there were two cures, or in other words the percentage of recoveries was 9·09, which is equivalent to saying that out of one hundred cases the operation proved fatal in nearly ninety-one! I have myself never done this operation for cancer, though two patients of mine suffering from that disease (Table I, cases 5 and 7), who were operated on by other surgeons, died in seven months. I performed thyrotomy some years ago in a non-malignant case. The patient had suffered from increasing difficulty in breathing for some time, owing to the vocal cords having become united to each other throughout the anterior three-fourths of the glottis by a tough web. I had twice done an endolaryngeal operation on this patient, but though I had succeeded in dividing the web on each occasion, the two cut edges had again become adherent. I therefore determined to slit up the web after dividing the thyroid cartilage, and I performed the operation at the Throat Hospital in the presence of my colleagues. In this case the patient would certainly have died by suffocation if nothing had been done, but I regret to say that the operation was not successful, death having occurred on the eleventh day from pleuro-pneumonia.

Everyone knows that operations on the air-passages are very liable to be followed by inflammation of the lungs or their serous and mucous membranes, and in adults these complications much more frequently follow thyrotomy (division of the thyroid cartilage) than tracheotomy (opening of the trachea). It is absurd, therefore, to pretend that the operation is free from danger. The actual mortality, shown in Table I, p. 266, does not give an adequate idea of the risks attending it, for there are many hairbreadth escapes among the successful cases. Thus, in case No. 1, according to Dr. Cutter's own words, "the return to complete sensibility was retarded by the accumulation of blood and mucus in the mouth, which ran down the trachea and out of the artificial opening. It was also accompanied by profuse sweating and some flagging of the pulse." After the patient was put to bed "vomiting ensued, and a large amount of blood, mingled with mucus, was evacuated."

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* Six patients died within 11 days, one on the 13th day, and two in 7 months. Two patients lived a year, one 15 months, one 19 months, and one 22 months. In the case of one patient who committed suicide in despair at the recurrence of his disease, the date of the fatality is not given.

In one of Prof. Navratil's cases,* the hemorrhage was alarming, and the patient nearly died under the knife, owing to the quantity of blood which passed down the trachea. In another of Navratil's cases the patient suffered from high fever after the operation, and expectorated a quantity of blood and pus; the parts round the wound became œdematous, and the patient was in a very critical state.

In Prof. von Schrötter's case† the operator observed that after dividing the thyroid cartilage, holding open the edges of the wound with blunt hooks "gave rise to such paroxysms of coughing, and caused so much fresh hemorrhage, that the examination could only be carried out for a short time;" and, further, "that the sputa consisted of pure blood, even well into the night, and on the following day the expectoration was still colored."

Mr. Timothy Holmes remarks with regard to his case,‡ "that the parts over the larynx were found to be peculiarly vascular." After the hemorrhage caused by the preliminary incision had been checked, the thyroid cartilage was divided. "The bleeding that followed was very considerable."

Again, the reporter of Mr. Davies-Colley's third operation remarks,§ that "the boy at one time ceased to breathe, blood having apparently run down the trachea into the bronchial tubes, and the chloroform acting powerfully on the lungs. But after artificial respiration had been carried on for several minutes the little patient recovered."

Dr. Fauvel, of Paris, pointed out,‖ many years ago, that when the thyroid cartilage is divided in the median line, and the two sides of the larynx are *held back or pulled outward*, the opening is very small, not so large in fact as the (upper) natural opening of the larynx. If in order to obtain a very complete view the sides of the larynx are too forcibly pressed back, great injury is likely to be done to the parts attached to the wings of the thyroid cartilage, and such injury would inevitably give rise to acute and dangerous inflammation. For this reason surgeons do not venture to force back the sides of the larynx (after thyrotomy) to any considerable extent, but are obliged to content themselves with a very imperfect view of the interior.

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* *Berlin. Klin. Wochenschrift*, December 7, 1868, p, 502.

† *Medicin. Jahrbuch, Wien*, 1869, vol xvii. zweite Heft, p. 81.

‡ "Surgical Treatment of Children's Diseases," 2d ed., p. 311.

§ *British Medical Journal*, September 28, 1872.

‖ "Maladies du Larynx." Paris, 1876, p. 229.

Dr. Fauvel's exact words are: "The opening obtained by the separation of the two wings of the thyroid cartilage is so narrow that it is with difficulty one can introduce in the adult the blades of a closed forceps. It was impossible for us, in the case of the patient who is the subject of observation, No. 84, to separate the blades of a polypus forceps between the two thyroid wings in spite of the greatest efforts. We should certainly have produced fractures." In this case the operator associated with Dr. Fauvel was not a "rough and ready" surgeon, but the accomplished M. Péan, one of the most brilliant and also the most careful of living operators.

The operation of thyrotomy is by no means so harmless as it appears, but like many other surgical procedures so readily undertaken at the present day, is attended with considerable danger. The fashion of reckless operating now in vogue owes its existence to a combination of circumstances, some of which may be easily overlooked. One of these is curiously enough the introduction of antiseptic methods. Nearly every great discovery is attended, however, with some drawbacks, and even the life-saving invention of Sir Joseph Lister, by rendering the conditions under which operations can be performed much more favorable, has resulted in some rash surgery. The conservative traditions of Fergusson, Nélaton and Langenbeck, have been forgotten, and as M. Verneuil remarks, at present, "if one surgeon cuts something, all his colleagues cut it, but in a different way." Dr. Gottstein, of Breslau, whose practical work on "Diseases of the Larynx" is now the best text-book dealing with these diseases which is published in Germany, remarks, (page 168):

"The extirpation of malignant neoplasms by thyrotomy has, according to present experience, given very unsatisfactory results. In twenty cases collected by Paul Bruns, in two instances death occurred soon after the operation, and only in one case no local recurrence took place; but here the fatal termination was due to cancer of the suprarenal bodies and of the left kidney. In all the other eighteen cases, local recurrence took place after a longer or shorter time, in a few cases indeed after two or three weeks, and only once was it delayed for one and a half years. There was never any mention whatever of a restoration of the voice after the operation."

I repeat, it is only necessary for the reader who wishes to form an idea of the danger of the operation to look at Table I (Section III, page 266). This is the operation which von Bergmann says is no more dangerous than an ordinary tracheotomy! This is the operation which he assured the Crown Prince in May, 1887, was free from danger! This is the operation from which the illustrious patient was saved by my removal of a portion of growth and its subsequent examination by Prof. Virchow.

The Inadequacy of the Operation.

I shall now proceed to prove my second proposition, viz.:—(*b*) *That the proposed operation does not afford a fair prospect of eradicating a malignant growth, but, on the contrary, is most frequently followed by* **recurrence.**

The reason why this operation does not afford a fair prospect of success, is because it is nearly impossible by means of it to get away the whole of the growth. Hence in these cases *recurrence* appears to take place very soon after the operation. In speaking of recurrence, it is most important to remember that in cases of cancer *recurrence is the equivalent term of* **death.** The patient soon dies when recurrence takes place, or his life may be rendered still more miserable by a second operation.

In one of Hahn's three cases, *recurrence* is said to have taken place five weeks after the operation, but it is much more probable that in this instance the whole of the growth had not been got away. In another case the recurrence which took place was probably very rapid, as the poor patient was so disappointed that he committed suicide. In the last case the patient died on the eleventh day before there had been time for recurrence to take place.

In the cases contained in Table I, p. 266, recurrence took place twelve times, or, in other words, the rate of recurrence was 54·54 per cent. This is the percentage in which the disease returned after an operation described by von Bergmann as promising the "best results!"* It must not be forgotten, also, that in four out of the twenty-two cases operated on, death took place so quickly (*i. e.*, in from eighteen hours to eleven days) that there was not time for recurrence. Had these unfortunate patients lived for a few months, and had the recurrence taken place in the same proportion in the four cases as in the others treated in the same way, the actual rate of recurrence would have been almost 90·0 per cent!

The fifth case in which death occurred as the immediate result of the operation is not included in this calculation, as the disease was found after death to be tuberculosis, and not cancer. As the operation was performed for cancer, however, I have included the case in the tables.

There is another point of less importance which may be just touched on here. I do not wish to attach too much weight to it, because life is so incomparably more important than the preservation of the voice that the latter is in the vast majority of cases an altogether secondary consideration. Special circumstances, however, may modify this general rule. In the case of a parliamentary orator, a clergyman, a barrister, a singer, a military or naval officer — above all, in the case of a future ruler, who has to be not merely an ornamental figure-head, but the real chief and imperator of a mighty army — the voice is of the utmost importance. Now what is the effect of thyrotomy (*Laryngofissur*) as regards the voice? Fifteen years ago I published in the *British Medical Journal* (April 26, 1873) a table which includes forty-eight cases, seven of which were malignant and the rest benign. Setting aside two cases which proved rapidly fatal, and one (Langenbeck's) in which the voice was not affected either before or after the operation, there remained forty-five patients. Of this number eighteen were completely voiceless after the operation, whilst nine were dysphonic (*i. e.*, hoarse); in five the voice was "modified;" and in three, though the condition of the voice is not mentioned, there was a strong probability that aphonia or dysphonia existed. In only ten cases was a previously defective voice restored by the operation. In fact, the voice was destroyed or "modified" in 77·77 per cent. of the whole number!

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* *Op. cit.*, p. 18.

As such a large proportion of the cases contained in my table were benign, the results of the operation, as regards the voice, were no doubt much more favorable than they would have been had all the cases been malignant, as the removal of a benign growth does not involve the sacrifice of so much of the structure of the vocal cord as is required for the effectual extirpation of a cancerous tumor.

In dealing with the question of the extent of the growth in May, 1877, von Bergmann adopts a method which is no doubt convenient from an argumentative point of view, but which can hardly be called straightforward. When he refers to himself as the operator, the growth is described* as "limited to the vocal cord." This is said to show *the very trivial nature of the operation* which would be necessary to effect a cure. When, however, I figure as the operator, and he wishes to show that it was impossible for me to remove the growth through the mouth, he states that it was not circumscribed, but that, on the contrary, it "affected the under side of the vocal cord and *probably the side wall of the lower larynx*."† In discussing the chances of success in such an operation as he proposed to do, I have taken as the basis of my argument von Bergmann's first theory that the disease was strictly localized. If, however, we adopt his improved theory, it is clear, on his own showing, that instead of the operation set forth in Table I, p. 266, he would have found it necessary to perform the one described in Table II, p, 268. In this, although the actual mortality is not quite so great, the results are very discouraging. There are thirty-five of these operations, fifteen of which proved fatal. In these cases death took place in one instance on the fourth day, in one on the eleventh, in another on the twelfth, in one on the fifteenth, in two at the end of five weeks, in two others at the end of six weeks, in one case at the end of seven weeks, and in another after ten weeks. In one case death occurred after thirteen weeks, in one after four months, in one in thirteen months, and in two after sixteen months.

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* *Op. cit.*, p. 19

† *Ibid.*, p. 22. The italics are not in the original.

Uncertainty of the Diagnosis.

Having shown that the operation which von Bergmann proposed in May, 1887, soon leads to death, because, *owing to want of sufficient access to the seat of disease*, the growth is not thoroughly removed, and recurrence, therefore, speedily takes place, I pass to the consideration of my third proposition:

(*c*) *That the presence of cancer was not ascertained in the case of the Crown Prince until November*, 1887, *if, indeed, cancer really existed at that date.*

The truth of this proposition has been abundantly proved in the first section of this work. Even Gerhardt does not profess to have been *certain* about the diagnosis in May, and as for Prof. von Bergmann, I have already said that before my first visit to Berlin, he did not even pretend to have any opinion at all as to the nature of the disease. He disclaimed all responsibility for the diagnosis, his position in the case being, according to himself, simply to act on Gerhardt's instructions.* The true nature of the growth could only be proved by microscopic examination, and as we have seen, none of the German doctors had been able to extract a piece of it for this purpose. I have myself never attached undue weight to microscopical evidence, but in doubtful cases it affords the only scientific test which we at present possess. I have pointed out in my work on "Growths in the Larynx"† that information afforded by the microscope is fallacious, but in doing so I meant to imply that an isolated examination could not always be relied upon. In the case of the Crown Prince the reports of Prof. Virchow afforded only negative evidence; but it must not be forgotten that *several* examinations were made in the most careful way by the greatest living pathologist. Great weight must necessarily be attached to them.

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* My authority for this statement is Dr. von Wegner, who, on two occasions during my stay at Charlottenburg, told me, that before my arrival in Berlin, Bergmann had always said, "Gerhardt makes the diagnosis. I am only the operator."

† This work was published in the year 1873. I had already then operated on over 100 cases, whilst the remaining cases published in the whole civilized world up to that date only amounted to 189.

The scientific world is more or less familiar with Virchow's reports, which, however, I have thought it well to publish again in full. (See pp. 110, 117, 129 and 152.) Not only did the eminent pathologist fail to find any evidence of cancer in the portions submitted to him, but he went further, and said there was "nothing present in them which would be likely to excite the suspicion of wider and graver disease." Prof. Virchow not only called attention to the possible non-existence of cancer in any portion of the growth, but he pointed out that "the operation had reached the deep parts," and stated further that the microscopic features "characterize the lesion as an epithelial growth combined with papillary offshoots (misnamed papilloma)," in fact as *pachydermia laryngis*, a purely benign kind of growth, or rather hyperplastic thickening. He accentuated his position by giving a lecture before the Berlin Medical Society on June 27, 1887, on pachydermia laryngis,* in which he let it be understood that he took the Crown Prince's case for his text.

It will be seen, therefore, that I had every reason to hope that the disease was not malignant. In a case like that of the Crown Prince, I affirm, without fear of contradiction by any honest physician, that before consenting to an external operation which avowedly would have been more or less of the nature of a leap in the dark, I should have the clearest and most incontrovertible proof that the disease was cancer.

There are two conditions under which a man may form an opinion — one in which that opinion is merely an academic one, and the other in which the opinion is to be followed by action of the most momentous character. Now, though theoretically it may be maintained that the practical results which are to follow an opinion ought not to influence the formation of that opinion, common-sense demands a different conclusion. If action is to be taken — and especially if that action brings a human life into immediate danger — much greater certainty ought to be arrived at than if the opinion is not to be followed by any practical consequences. Thus a prudent general may be in doubt as to whether a certain defile is in possession of the enemy. He may believe that it is open, and if it is not necessary to make use of this gorge his opinion may not be weighed with the most minute care. If, however, he has to send a detachment through the pass he must be absolutely certain either that it is undefended, or that he can force it before he allows his men to attempt the passage. A jury in giving a verdict ought to be much more certain of the proofs of guilt, if death is to follow their decision, than if the punishment will merely be a few months' imprisonment. In the same manner, if the question of the nature of the Crown Prince's ailment had been merely an academic one, I possibly might have admitted that it was of a sufficiently suspicious character to be placed in the category of cancer; but when my verdict was to carry with it the performance of an operation sometimes immediately fatal, and even when not immediately fatal, generally followed by a recurrence of the growth, and ultimately leading to more rapid death than if the patient had been left alone, I repeat, I required the most absolutely conclusive proofs. To put it in another way: a patient has a small hard lump in his lip which looks a little like cancer, though its nature is not by any means certain. Now we know that such a lump can be cut out without the smallest danger to the patient, and we know also, with almost absolute certainty, that the whole of the disease can be taken away. In such a case we naturally recommend the operation, even though it may not be at all certain that the little tumor is malignant. In the case of the breast again, the entire organ can be completely removed with little or no danger; hence this operation is often performed in doubtful cases, and it is well known that many operations of this kind have been performed for perfectly harmless tumors. In the larynx, however, the very opposite conditions exist. There is danger in the operation itself, and the greatest uncertainty as to the complete removal of the disease. When the tongue is the organ affected the same argument applies. In a case of such transcendent importance as that in which I was engaged, I maintain, at the risk of reiteration, that before it would have been justifiable to perform an operation, not only highly dangerous in itself, but extremely uncertain in its results, the most positive evidence of its necessity was required. This, however, was not forthcoming.

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* *Berlin. Klin. Wochenschrift.*

The pathological reports only show that scientific investigation has its limits. The one thing which has been added to our knowledge by this sad case is that, in cancer of the larynx, in very rare cases, *a benign growth may co-exist with a cancer.* These two conditions have been known to co-exist in cancer of other parts; but the experience of Prof. Virchow, especially directed to that point, is that up to the occurrence of the Crown Prince's case, the two morbid conditions did not occur simultaneously in the larynx. Had this fact, however, been known before, I very much doubt whether, after the negative results of Prof. Virchow's repeated examinations, any surgeon would have ventured to perform an external operation on the illustrious patient. Some people say that Virchow's reports, so far as they were objective, instead of disproving the existence of cancer, actually proved its presence. I may even say for myself that, had I received Prof. Virchow's reports without his comments, I should have come to this conclusion. When, however, so eminent a pathologist, a specialist whose position is unique in his own department, expressly declared that no such inference was to be drawn from the appearances he described, would it not have been absurd for me, a mere practical physician, to have set up my opinion against that of Virchow on a question of pathology?

Before proceeding to ask what would have been the probable result had von Bergmann operated in May, 1887, I may be permitted to call attention to two very important circumstances. These are: First, that when it was known that I had removed a piece of growth, and that it was sent to Virchow for examination, Dr. Hahn (admitted on all sides to be the most experienced and successful operator on the larynx *from the outside*) remarked to Dr. Wegner that unless Virchow, or some other pathologist, found evidence of cancer in the portion of growth removed, he would not recommend an external operation to be performed. I must remind my readers that had Prof. von Bergmann performed the operation on the Crown Prince in May, 1887, Dr. Hahn had been engaged to be present in order to assist, or rather direct von Bergmann. It will be seen, therefore, that in the advice I gave I was supported by the most skilful operator of the day.*

The second point to which I wish to call attention is that in October, 1887, von Bergmann told Count Radolinski that in preventing the operation in May I had done perfectly right. It is therefore obviously unfair and unscientific for von Bergmann to attack me subsequently, from an *ex post facto* standpoint, because events did not turn out satisfactorily.†

It must now be asked, what would have been the probable result if I had sanctioned the proposed operation in May, 1887? Von Bergmann objects to statistics being made the basis on which a judgment as to the justifiability of operations should be formed, and in view of the terrible results which have followed the various external operations on the larynx, I am not surprised that he should take up this position. He can have no objection, however, to my placing before my readers the results of the experience of so careful an operator as Dr. Eugen Hahn. As already remarked, this gentleman is admitted to be the most successful external operator on the larynx at the present day. He is indeed the only surgeon who can boast of any success whatever, and that success has, I understand, been obtained in great measure through his care in selecting cases which he thinks suitable for the operation. The public should understand that there are two classes of operating surgeons, viz.: those who operate in all cases where there is the smallest chance of success; and those who refuse to operate unless there is every reason to expect a good result. There is a good deal to be said in favor of both classes. The bold surgeon, who operates in nearly every case that offers itself, no doubt from time to time has achieved some brilliant triumphs. On the other hand, the surgeon who operates only in cases of a very promising character obtains better results in the main than his rasher colleague. Dr. Hahn belongs to the category of careful surgeons.

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* This was told me by Dr. Wegner in May, 1888, though in July, 1887, Dr. Wegner imparted to me a portion of the information in the Isle of Wight.

† This information was given me at San Remo by Count Radolinski in November, 1887. It was mentioned by the *British Medical Journal* of November 19, 1887, p. 1127, and has not been denied by von Bergmann.

Let us consider the results of thyrotomy even in his careful hands. They can be seen at a glance in the subjoined table.

Nothing could be more lamentable than this table. The first case is described as "cured," although the patient had to wear a canula afterward, or, in other words, was no better than if simple tracheotomy had been performed. Case No. 2 is described as "cured," although recurrence of the growth took place five weeks after the operation! Let us follow up the case of this unfortunate patient.

On May 5, 1887, less than five months after he had submitted to thyrotomy, total extirpation had to be performed (three weeks before the date on which it was intended to operate on the Crown Prince). The patient survived this procedure only four weeks. Here we have an example of what would in all probability have been the fate of the Crown Prince if von Bergmann had operated on him in May, 1887. His Imperial Highness would have suffered in May all the misery which he went through in the following February.

Name of Patient.	Result.
1 Scheidenreicht	Cured (?) but could not dispense with canula. Recurrence. Death from suicide.
2 Hahn*	Cured. Recurrence 5 weeks after operation.
3 Richter............	Death on 11th day through heart-failure. Operation only undertaken at urgent request of patient.

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* The patient's name was the same as the operator's.

Instead of this, as the result of Virchow's report, the illustrious patient passed many months of pleasant existence, during which he often told me that he felt as well as ever he had done in his life. If when the time came for tracheotomy to be performed the after-treatment of that operation had been carried out in an intelligent manner, not only would the illustrious patient have been spared much unnecessary suffering, but his life would in all human probability have been prolonged considerably beyond what actually was the case. The average duration of life in cases of laryngeal cancer is two years, and there are well authenticated instances of patients undoubtedly suffering from the disease having lived for three and even four years. Taking the average period, however, the Emperor's "expectation of life" was till about February, 1889. Thus several months of his existence were sacrificed through unskilful treatment and the use of clumsy instruments.

Perhaps all the evil results ought not to be laid on the shoulders of Bergmann and Bramann, as the rapid development of the disease was in part probably caused by Gerhardt's extraordinary abuse of electric cautery. The slow progress of laryngeal cancer is universally recognized, the hard incasing cartilage resisting the progress of the disease. In this case, however, Gerhardt's reckless use of the red-hot wire no doubt set up the perichondritis which formed such a prominent feature in the case and hastened the fatal result.

CHAPTER XXV.

THE INDICTMENT.

The Witnesses.

I propose now to pass briefly in review the various reports contained in the pamphlet in which my adversaries have embodied all their personal and professional grievances against me. Some points have necessarily been touched upon already in one or other of the foregoing chapters; these I shall not again refer to unless further explanation may seem to be desirable for the sake of clearness.

Before dealing with the individual statements, a few words must be said as to the reports collectively, in order that the reader may be in a position to judge between me and my accusers. A large part of the indictment against me rests on evidence which is utterly worthless, because it is adduced by witnesses who are either too prejudiced to be altogether credible or too ignorant to be in any way competent. I am charged with having failed, or refused to see certain appearances in the Crown Prince's larynx which should have opened my eyes to the real state of things long before the crisis at the end of autumn. The testimony adduced in support of this is: 1, that of Prof. Gerhardt, who had the strongest personal reasons for painting the situation in the blackest possible colors; 2, that of Prof. Tobold, who throughout his brief connection with the case was simply the *fidus Achates* of Gerhardt; 3, that of Prof. von Bergmann, who did not even pretend to see anything in the Crown Prince's throat beyond what he was told to look for; and 4, that of Dr. Landgraf, whose determination to see *something* for himself resulted in the highly imaginative "observations" to which I have more than once alluded. At a later period equally valuable "observations" were made by Dr. Bramann and Prof. Kussmaul, which are now gravely brought forward as independent testimony outweighing that of specialists like Krause, Hovell and myself. I will do Prof. Kussmaul the justice to say that I do not think that he had any idea of posing as a laryngoscopist at San Remo; his examination of the Crown Prince's throat was only intended as a sort of medical rite or ceremonial observance appropriate to the occasion. Bergmann, Bramann and Landgraf, however, whose laryngoscopic skill was just as much a *quantité négligeable* as that of Kussmaul, were far from being so modest in their pretentions; they went through the farce with the solemnity of Roman augurs, and had the results of their *pro formâ* examinations duly added to the "official sources." The whole thing was a melancholy sham. The mere manual art of laryngoscopy can only be acquired by much practice, and when that has been mastered there are still many fallacies of observation which it requires considerable experience to guard against. It is therefore as preposterous that the "observations" of a novice, who hardly knows how to hold the mirror, should be set against those of an expert, as it would be for me to claim the same importance for astronomical observations made by myself as for those of Sir George Airy or Mr. Christie.

The "Official Sources."

As the authors of the German pamphlet appear to claim some special authority for their production on the ground that it is drawn from "official sources," it may be as well to show exactly what that imposing expression means. The "official sources," as a matter of fact, largely consist of documents drawn up by those gentlemen themselves in their private capacity. These lucubrations are thereupon incontinently deposited (often, I imagine, without being read) in the state archives, where they acquire the proper odor of beauracratic sanctity, and from which they are in due course brought forth as "official" documents of the highest importance. In the present instance, not only were the innumerable protocols and reports of various kinds, which we all had to send in from time to time, carefully deposited among the "official sources," but all the quack nostrums, miraculous waters, magical incantations, charms, talismans, phylacteries and relics, with the directions for their use, were solemnly stowed away in the proper pigeon-holes. Even the oatmeal malt extract, the essences and quintessences of beef, and all the infinite variety of patent articles of diet which were showered on the Emperor's doctors by humane persons or enterprising tradesmen, were placed in the same official limbo. It will be seen that the word "official" covers a most heterogeneous collection of "documents," of very different degrees of historical value.

As regards any opinions or statements attributed to me in "official" documents, I take this opportunity of saying that unless they are signed by me, they have no authority whatever. It is true that rough notes were taken at some of our earlier consultations by Dr. Wegner, but the fair copies embodying our several views were never, I believe, submitted to the individual physicians and surgeons for their perusal and signature. At any rate, I can speak with certainty for myself. No document embodying a *précis* of remarks by me at a consultation was ever placed before me in order that I might say whether it gave an accurate account of my opinion.

The Evidence: Gerhardt's Report.

In dealing with Prof. Gerhardt's report, what must strike every impartial reader is, that he thought much more of protecting his own professional reputation than of benefiting the Crown Prince. As he could not himself extract a piece of the growth for microscopic examination he should have at once called in some one who could do so. There are at least half a dozen men in Germany who could have done this little operation which I subsequently performed. This, however, would not have suited the views of the professor, who accordingly invoked the aid of a general surgeon who could not be his rival in the laryngological field. When the illustrious patient was at Ems, Dr. Wegner already perceived that he had made a mistake in calling in Prof. Gerhardt, and expressed an opinion that a competent specialist ought to be summoned.* This, however, was prevented by Prof. Gerhardt, who insisted on Bergmann being summoned. At a later period, when for the sake of appearances a throat specialist had to be called in, instead of sending for one of the leading men in that line, a gentleman was chosen, who, on his own confession, "no longer operated!" In this way Gerhardt hoped to hide his own incompetence. At a later period I had the honor of being summoned from London, not apparently because my opinion was likely to be of any value, but because "every person who knew how to make a laryngoscopic examination must come to the same conclusion" as Gerhardt had done! The grounds on which I was called are thus clearly laid down. If the proposed operation had been performed and had proved successful, Bergmann would have said that the nature of the disease was quite clear; Mackenzie was only called in as a matter of form. If, on the other hand, the operation had proved fatal, Bergmann would have thrown the responsibility of the whole thing on me.

The first charge brought against me by Prof. Gerhardt is that I took the forceps out of my pocket and used them without first disinfecting them. As it happens, the instrument was contained in a silk bag lined with carbolized wool, which I have long used for the purpose. He further says that I was not able to throw the light on to the laryngeal mirror, but that it fell on the patient's cheek. Of course in reflecting a ray of light on to a mirror it must pass across the patient's face before it reaches the little glass, and if Prof. Gerhardt happened to notice it in its transit, that was certainly no fault of mine. That I could introduce forceps into the larynx at all without the larynx being illuminated is too absurd a theory for further consideration.

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* *Op cit.*, p. 5.

I have already referred to Gerhardt's utterly baseless allegation that I had wounded the right vocal cord. At the time of the supposed accident, I understood that I was charged with nothing worse than clumsiness. In his published statement, however, Gerhardt goes altogether beyond his former amiable insinuation, and accuses me of having been unskilful of malice aforethought. He says,* "This must be the first case in which a laryngeal specialist has *endeavored* † by mistake to tear away a piece of a healthy vocal cord." I have only to say that the infamy of so disgraceful a charge recoils on the person who makes it. I am certainly at a loss to understand how a person can *endeavor* to do anything by *mistake*, but the impression which Prof. Gerhardt has tried to convey to the public is, I suppose, that, in order to mislead Virchow, and to get from him a favorable report on the portion removed, I endeavored to take away a piece of healthy tissue instead of the diseased structure. It would seem that Gerhardt thought the charge which he first made against me was not sufficiently damaging to my reputation, and that he therefore altered it. On this subject I need only say that on every occasion that any tissue was removed by me from the Crown Prince's larynx it was at once submitted to Prof. Virchow. As already remarked, that eminent pathologist pronounced every fragment examined by him to be unquestionably *diseased.*

Several of the other accusations he makes against me are hardly less remarkable for their combined absurdity and malevolence. Thus he actually states that "on the 24th of May it was already generally known that Mackenzie had promised the relatives of the illustrious patient *to cure the disease in a few weeks.*"‡ Now everybody knows that the length of time required to cure benign growths is most uncertain, and that no laryngoscopist would dream of saying that a patient could with certainty be cured in a few weeks. The most that I ever said on this subject was, that if the disease was *not* cancer, I believed I should be able to cure it. I never referred to the question of time at all. Another ridiculous statement is, that I said that "the climate of the Isle of Wight would greatly assist in the cure" of the Crown Prince.* Prof. Gerhardt appears to be under the impression that the Isle of Wight is a place like Ems or Homburg where patients undergo "cures." I have already explained how the Isle of Wight came to be chosen by the Crown Prince as a place of residence, and I could hardly have imagined that any one could have been so silly as to believe, or even profess to believe, that I recommended the climate as beneficial in cancer.

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* *Op. cit.*, p. 9.

† The italics are not in the original.

‡ *Op. cit*, p. 10.

The Evidence: Prof. von Bergmann's Report.

Prof. von Bergmann appears in two different characters in the pamphlet: First, as the author of a separate report; secondly, as the general editor of the whole publication. How far, in the latter capacity, he acts independently, and how far he is the mouthpiece of the other physicians and surgeons whose reports appear under the same cover, it is impossible for me to say. But I should imagine that several of his colleagues would hardly care to be responsible for the statements which appear in that portion of the work which is supposed to be under the supervision of von Bergmann. His own report may be conveniently considered under three aspects: First, a narrative of "facts" which does more credit to his imagination than to his memory; secondly, complaints of the scandalous injustice of newspapers supposed to be inspired by me, and denials of responsibility for the still more outrageous utterances of papers, supposed to be inspired by him; thirdly, miscellaneous polemics on more or less irrelevant topics.

Various portions of von Bergmann's narrative have already been dealt with in the earlier chapters of this book. I need not, therefore, do more than call attention to a few of the grosser misstatements. In speaking of the period immediately subsequent to the tracheotomy he says, "that [I] admitted that the first tube I had made at San Remo was too narrow in the bore to be used." This is absolutely untrue. I was not allowed to introduce my instrument because it was a trifle smaller than the one already in use. I pointed out that it would be much better to use a smaller tube which would stop the coughing and bleeding, than to wait for a new canula. (See Section I, p. 174.) But where Bergmann chiefly shows his mastery of the "scientific use of the imagination" is in his account of the events of the fatal day (April 12) which may, without exaggeration, be said to have sealed the doom of the suffering Emperor. The painful story has already been told (see pp. 198–204) and need not be repeated here. It is necessary, however, to point out the inaccuracies of the German surgeon's version as given in his report.

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* *Op. cit.*, p. 11.

He states that immediately after his arrival at the palace, on seeing the state the illustrious patient was in, he thought "there was no time to be lost, and with Mackenzie's consent [he] sent a servant to fetch Bramann" who was in his carriage outside. As I have already said (p. 200) so far from the Emperor being on the point of suffocation, we found him quietly writing when we went to his room. Prof. von Bergmann, however, says, "I and my assistant were not the only ones who found the Emperor in a state of suffocation." Now though the professor certainly did *not* find His Majesty in such a condition, it is quite true that his assistant did, as something had taken place before he appeared on the scene which had made a terrible change in the state of affairs. Prof. von Bergmann did not send for Bramann *until he had thrice plunged his sharp-edged canula into the tissues of the neck in front of the trachea.* Dr. Bramann therefore did not witness the unfortunate performance of his chief, though he must have been somewhat puzzled at the latter's failure to do a thing which he himself did without the least difficulty. I observe that Bergmann seeks to corroborate his statement as to the Emperor's breathlessness by the testimony of Gen. von Albedyll, Gen. Bronsart von Schellendorff, and Gen. von Winterfeldt, who, according to him, had noticed symptoms of "suffocation" during the day. These gentlemen are no doubt most distinguished officers, but the question is hardly a military one, and I really cannot accept their opinion on such a matter in preference to the evidence of my own eyes. I am glad to find one sentence of Bergmann's narrative which I can confirm; it is quite true that he held apart the edges of the wound, while his assistant introduced the tube. Bergmann seems anxious that he should receive full credit for this achievement, but it is not easy to see on what he grounds such a claim, for the difficulty with the canula had nothing whatever to do with the edges of the wound, and the professor's help was therefore quite superfluous.

In connection with this incident an utterly false and calumnious statement appeared in the *Kölnische Zeitung*, from the pen of its Berlin correspondent, a Dr. Fischer, who for some months previously had supported von Bergmann in that journal in a very violent and aggressive manner. The whole occurrence was grossly misrepresented. Mr. Hovell was accused of having refused to go to the Emperor when summoned by the orderly on the night of 11th–12th, and it was asserted that in trying to insert the canula he had forced morbid matter into the windpipe and lungs. Further, that the Emperor was left from 10 o'clock on Wednesday morning (11th) till 5 o'clock on Thursday evening (the 12th) entirely in the hands of the English doctors, when fortunately von Bergmann arrived in time to save His Majesty's life! Mr. Hovell was obliged in self-defence to rectify a statement so damaging to his professional character, and in order to do so he had of course to give an accurate account of the facts, including von Bergmann's share in the proceedings. Mr. Hovell's letter was commented on in the *British Medical Journal*, whereupon Prof. von Bergmann took the extraordinary step of sending a communication to the Berlin Medical Society, of which the following is a copy:

"On April 28, the *British Medical Journal* made these remarks: 'As Prof. von Bergmann has not contradicted this statement (viz., that he had made a false passage) it may be accepted as true;' that is to say, because I am silent in the face of a statement of facts and of personal attacks, it shows they must be well founded. If the *British Medical Journal* were not a journal whose scientific value I prize very highly, I might still remain silent in the presence of such an accusation, but under the circumstances I must defend myself. I am not silent because I am in the wrong, but because I, like every honorable British or German physician, do not talk publicly about what goes on at the bedside of my patients." It was naturally supposed when Prof. von Bergmann adopted such an unusual course as to make this attack on me at the Berlin Medical Society, that on a fitting occasion he would give some satisfactory explanation. Two months afterward he publishes a report, in which, instead of giving an explanation, he suppresses the true facts, and makes a statement which is absolutely false.

If it was merely a question of credibility between Prof. von Bergmann and myself; if there was nothing more than my word against his respecting this matter, it might be difficult for the public to decide which version to accept. Fortunately for the sake of truth there are objective facts in the case which cannot be explained away by any sophistry. It can be proved that there was no bleeding whatever before Bergmann's arrival. It can also be proved that his forcible attempts to introduce the tube were followed by profuse hemorrhage, the blood running out of the wound in the neck and also down the windpipe, and causing violent coughing. Three days afterward the Emperor had a shivering fit. A day or two later still, an abscess is noticed in the tissues into which von Bergmann thrust his canula. The abscess extends downward, ounces of pus are secreted daily, the patient is harassed by constant coughing from the pus finding its way into the windpipe, and his strength is reduced by the profuse and continual discharge of matter. At last he sinks and an immense abscess-cavity is found after death just in the place where Bergmann made the false passage! The logic of these facts is irresistible.

As to the question of dealings with the press, the disgraceful attack on Mr. Hovell which has just been referred to, though utterly false in almost every detail, yet bore internal evidence of being founded on information supplied by some one who knew what had taken place. It was a complete breach of the truce in the newspaper warfare raging round the case which had been arranged at San Remo in the early part of March (see p. 181), but which I must admit had never been kept by a certain section of the German press. Although dishonorable to the last degree in itself, it was an adroit manœuvre from the strategical point of view. A serious injury had been inflicted on the Emperor, the effects of which it would be impossible to hide for any length of time. It was therefore most important to throw the blame on the hated foreign doctors, and as the facts which had occurred in the daytime could not well be distorted, Mr. Hovell, who, being on night duty, would have no witnesses to appeal to, was made the object of attack. The Emperor himself, however, knew well who it was that had done him a grievous injury, and neither open slander nor malicious insinuation can deflect the terrible condemnation from the man to whom it was applied by the illustrious sufferer. One proof of the entire disregard for truth which characterized the whole article is too striking to omit. It was stated that Mr. Hovell, on being called, told the orderly that it was unnecessary for him to get up, and some further conversation between them was recorded. As Mr. Hovell does not speak a word of German, and the orderly does not know a word of English, it would be interesting to know how the conversation is supposed to have been carried on.

Although this impudently mendacious account of the catastrophe appeared at so opportune a moment for Prof. von Bergmann's reputation, I am not prepared to assert positively that he himself inspired it. It is possible that the orderly, who had been in the habit of "controlling" me (see p. 191), may have been the "official source" of the lie. A day or two later the *Kreuz Zeitung* referred to the subject, and said that on the fatal 12th I was quite "*rathlos*" "at my wits' end," *i. e.*, quite at loss to know what to do, and Bergmann was again made to figure as the savior of the Emperor. These attacks were re-echoed in the provincial press, in still coarser terms. Feeling that definite imputations of so grossly personal a nature could not be passed over in silence without seeming to admit their truth, I had to insist on the *Kreuz Zeitung* publishing a contradiction of the statement. The following is the letter I wrote, which, it will be seen, is very moderate in tone, and contains no allusion to the injury which Bergmann had inflicted on the Emperor:

"The remark that I was at my wits' end, and therefore sent for Prof. von Bergmann on Thursday the 12th instant, is absolutely false. The truth is that as Prof. von Bergmann has charge of the surgical treatment of His Majesty the Emperor conjointly with me, I thought it more courteous to the eminent surgeon to invite him to assist me in inserting a better fitting tube instead of one which no longer served its purpose. As Prof. von Bergmann seemed to wish to insert the new tube, I raised no objection. He was, however, unsuccessful, and the tube was finally inserted by Dr. Bramann. As my courtesy led to misrepresentation by you and others, I have since changed the tube when necessary or desirable without summoning Prof. von Bergmann."

It would be tedious and not in the least instructive to follow Prof. von Bergmann through the various newspaper paragraphs he has collected. He seems to be extremely annoyed at a statement made in the *Pall Mall Gazette* that he has never had a successful case of complete or partial extirpation of the larynx. To this he replies that he has had seven cases of thyrotomy (*laryngofissur*). It has already been pointed out that these operations were not done for cancer, and besides it may not be superfluous to emphasize the fact that thyrotomy is not the same operation as excision of the larynx. It now also appears tha' Bergmann has had one successful case of this latter operation in a patient suffering from cancer. His statement that whilst I was in Berlin he offered* to show me this patient has no more foundation than many others of his so-called facts. I never heard of the case till I read of it in the German pamphlet. Had I had the opportunity of seeing a patient cured by the professor, I should have examined him with the greatest interest and curiosity.

Bergmann seems to hold me personally responsible for every paragraph which appeared in the English papers as to the illness of the Crown Prince. I am even taxed with having inspired statements which I knew to be false, about matters of no importance whatever. The professor's view, so far as I can make out, is that this was done simply from a disinterested love of lying, for the statements referred to could not by any possibility be of any service to me. He further states that it is proved from "official sources" that I was in the habit of receiving fourteen correspondents. This is absolutely false. I certainly gave some information to the representatives of three German newspapers, but the information was of a most trival character, viz., as to whether His Majesty had had a satisfactory night, or whether his appetite was good. So meagre was the information that I gave, that on the days when the bulletins were published the correspondents did not usually apply to me. So far from encouraging the representatives of the press, it is a well-known fact that I subjected myself to systematic misrepresentation by the correspondent of a leading English paper, because, after he had "placed his services at my disposal," I declined to receive him.

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* *Op. cit.*, p. 19.

Why does not von Bergmann complete the story? He could easily show, and let me add from "official sources," that *this paltry charge against me was actually laid before the Emperor and*, further the same unimpeachable "sources" show that *His Majesty treated the charge with silent contempt.* I may add that in order to neutralize the absolutely false reports made by the "reptile" press respecting the condition of the Emperor, if I had been able to speak the truth, not merely to the representatives of fourteen but of fourteen hundred or even fourteen thousand newspapers, I should have been more than justified in doing so. Sheer physical fatigue caused by my professional duties unfortunately compelled me to limit my interviews with the representatives of the press to the narrowest limits. I may, however, remark in conclusion, that the liberal-minded monarch, whom I had the honor to serve, was not only aware of my relations with some members of the press, but that, in the most important journalistic episode in which I was concerned, he even condescended to advise me.

Dr. von Bergmann's virtuous indignation on the subject of coquetting with the press is edifying even if not altogether convincing. Methinks the professor doth protest too much when he is not accused, and not enough perhaps when he is. At any rate he has never answered my challenge in the *British Medical Journal* of May 12, 1888, p. 1032, where I openly charged him with having been in frequent communication with journalists, and mentioned specific instances in which this had taken place. Prof. von Bergmann, who was so eager to reply to a remark in the same journal not long before, has never attempted to traverse the statements made by me in that letter. If he held himself as scrupulously aloof from the papers as he would have us believe, the faculty of "thought-reading" with regard to him which seems to have suddenly become developed in several "able editors," is little short of miraculous. Not only did they know by intuition what von Bergmann had said in consultations with his colleagues, but they were able to record measures as having been actually adopted which had been proposed by the professor without, however, having been carried into effect!

Thus on the morning of the 19th of April, Dr. von Bergmann brought with him a piece of elastic tubing which he intended to pass through the canula. He then intended to withdraw the canula, and, leaving the elastic tube in the throat, afterward to thread another canula over it, and pass a second one into the trachea. As it happened, there was no occasion for this apparatus, Mr. Hovell having changed the tube without any difficulty during the previous night. The professor's ingenious device was, however, described in the *National Zeitung* on the following day, as having been adopted with the greatest advantage. At San Remo, Dr. von Bergmann displayed histrionic talent almost equal to that of his brother professor, Gerhardt. He publicly ejected Dr. Goldberg, a representative of the *National Zeitung*, from his room with appropriate Pecksniffian pantomime; but in spite of this the views which the distinguished surgeon expressed at our daily consultations were unfailingly reproduced in the columns of that journal. It afterward turned out that the said Dr. Goldberg was the regular reporter of Bergmann's lectures at Berlin! When the Emperor was at Charlottenburg, the *National Zeitung* published the minutest details concerning His Majesty; not only was the exact diet given, not only the frequency of the pulse, but even the number of respirations per minute. By a curious coincidence, when von Bergmann retired from the case these details no longer appeared in the *National Zeitung*. Details it is true were put in, but they were invented by the ingenious reporter, and were wholly inaccurate. But the power of divination shown by this enterprising journal, with which von Bergmann "had no relations whatever," was even more remarkable in November, 1887. At that time the details of a conference between Prof. von Bergmann and Prof. Gerhardt, which took place at the Haus-Ministerium, in Berlin, were reported in the *National Zeitung* with such amazing accuracy that the "official" reports of the conference, which now appears in the German pamphlet, is identical in its language!

These facts are, I think, sufficient to show the value that should be attached not only to Prof. von Bergmann's own protestations, but to the disclaimers of the various editors who, "of their own accord, declared in the most solemn manner that [Bergmann] had never had any relations, direct or indirect, with them." There is a refreshing simplicity about the dilemma propounded by von Bergmann, viz., that either these honorable gentlemen have "lied intentionally," or their solemn statement aforesaid must be received as gospel truth. I at least have no difficulty in deciding which of these alternatives is to be accepted.

I have not space to follow Prof. von Bergmann in his somewhat discursive remarks *de omnibus rebus et quibusdam aliis*. His complaint that I failed to adhere to the arrangement made with my German colleagues has already been answered. (Pp. 119 and 120.) The mystery which he seems to think underlies the fact of Gerhardt not having come to England in the Crown Prince's suite may of course appear as insoluble to Bergmann as it does to Gerhardt himself. I cannot profess to be able to dissipate the Cimmerian darkness in which this important matter is involved, but it strikes me as just within the bounds of possibility that the Crown Prince may not have cared to be accompanied by a man who had shown himself incompetent, indiscreet and obstructive.

Prof. von Bergmann's views on the use of the microscope in medicine are of no particular interest to any one but himself. I confess, however, I cannot share the belief which he appears to entertain that his opinion or mine on a question of pathology is as good as that of a specialist in such matters. I may point out, however, that Dr. von Bergmann has entirely misrepresented the position which I took up at San Remo, as indeed I had maintained from the commencement, viz., that in a case of such importance the microscopic examination ought to be made by the leading German pathologist. He says: "We could never understand the position of a doctor whose treatment could only be based on the section of an anatomist (microscopist), a position which carried out to its full consequences places the physician behind the *post-mortem* table!" In other words, von Bergmann insinuates that because I ask for a piece of the structure of a doubtful tumor to be examined with the microscope *during life*, I am placing myself behind the *post-mortem* table, which means, if it means anything at all, that I am waiting for the death of the patient in order to discover the nature of his disease. Bergmann's logic appears to be quite as eccentric as his mode of handling tracheotomy tubes.

The Evidence: Dr. Landgraf's Report.

I need not waste words on this gentleman's report. The remarks which I have felt obliged to make in the earlier parts of this book as to his mode of making laryngoscopic examinations suffice to show the value which I attach to his "observations." The self-satisfied confidence with which his wonderful statements are made would be sublime if it were not ridiculous. Dr. Landgraf may by this time be an excellent laryngoscopist, but it is quite certain that when he was "controlling" me in the summer of 1887 he had not learned the rudiments of his art. Hence I am surprised to find that after I had removed the growth on June 26, the young Stabsarzt actually saw that it was no longer there. If he had said that it was twice as large as before, or had moved bodily over to the other side of the larynx, or perched itself on the top of the epiglottis, the discovery would have been more in character. The following extract from Dr. Landgraf's diary is a fair specimen of the whole: "I proposed to Dr. Wegner that we should induce His Imperial Highness to give orders that when Dr Mackenzie made any change in the treatment he should communicate the details and the special reason for it to Dr. Wegner. These details I proposed to take down every time in the form of a protocol. This proposal was declined by the party concerned."* As I was never consulted, I presume "the party concerned" means the Crown Prince. On the 25th of June, I find the following interesting entry: "I referred to the importance of repeated examinations for swellings of lymphatic glands, and discussed the chances of thyrotomy (*laryngofissur*) with one of the highest personages in the august circle." I will not trouble my readers with further extracts from this remarkable document.

The following little incident, which is related by Dr. Landgraf with the most portentous gravity, is thoroughly characteristic of the man. After he had made an examination of the illustrious patient's throat at Braemar, Mr. Hovell asked him what he saw. I do not know whether Mr. Hovell asked this question merely out of politeness, or whether he wished to ascertain what wonderful discoveries Dr. Landgraf had made. Mr. Hovell has practiced laryngoscopy during the last ten or twelve years, and I have never come across a more careful or more accurate observer. The young Stabsarzt, however, was under the impression that he was a much more skilful laryngoscopist than Mr. Hovell, and expressed his surprise that a gentleman who had had so many opportunities of examining the throat, should ask him for *information!* It would indeed be matter for surprise if any one who had ever seen Dr. Landgraf use the laryngoscope should ask him for information.

The Evidence: Professor von Schrötter's Report.

There is not much in Prof. von Schrötter's report that calls for special notice. There is, however, one important error in his evidence which is very unfair to Prof. Krause. The exact words which Krause used in speaking of the diagnosis have already been given (see p. 144); instead, however, of quoting these words, von Schrötter says† that "Krause strongly urged the possibility that it might *not* be a neoplasm but another disease." This was exactly the position subsequently taken up by Dr. Schmidt (see p. 145), and it cannot be at all satisfactory to Prof. Krause that language used by Schmidt should be attributed to the wrong person. For some reason not explained, von Schrötter has omitted to explain his change of front as regards the total extirpation of the larynx. He writes, moreover, with a somewhat overwhelming sense of his own importance. The Olympian condescension with which he speaks of Krause, a laryngologist in every respect his equal except in point of age, as an "industrious young colleague," prepares us for the quasi-celestial wrath with which he seems to have regarded Hovell for daring to express a decided opinion. It does not seem to be admitted as a valid excuse for the English surgeon that his opinion was only given in reply to a direct question of the Crown Princess. It happened to differ from that enunciated by Prof. von Schrötter, and although that oracle himself changed his mind whilst he was at San Remo, Hovell's almost blasphemous presumption in expressing the opinion ultimately arrived at by von Schrötter has evidently not been forgiven. If I might venture to criticise one of the Viennese professor's dogmatic utterances, I would ask to be allowed to point out that, if I did not attempt to remove a fragment of the new growth for microscopic examination on this occasion, this was not in the least because he "pronounced categorically against it." The determination not to operate was come to before Prof. von Schrötter's arrival, and was based on the "angry" appearance presented by the larynx, which contra-indicated any manipulation with forceps.

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* *Op. cit.*, p. 28.

† *Op. cit.*, p 36. The exact words of our several reports, deposited in the archives of the Haus-Ministerium, ought certainly to have been published in the German pamphlet, the German physicians having had full access to the "sources," though it was absolutely denied to me.

As Prof. von Schrötter's somewhat offensive airs of patronage with regard to Prof. Krause might mislead some people as to the relative merits of the two men, I think it right to point out that, although it is true that Prof. Krause was at one time a pupil of his, it is no less true the pupil has since shown himself capable of teaching the master. The value of Krause's practical work was publicly testified to by Prof. von Schrötter himself at the meeting of German naturalists and physicians in 1887, when he declared that whereas he had formerly entirely disbelieved in the possibility of the cure of throat-consumption, he had obtained results which he had never before thought possible, since he had adopted Prof. Krause's method of treatment.

Since the year 1881, Prof. Krause has probably done more for the throat specialty than any living laryngoscopist, and the extent of his investigations has been by no means limited. His articles on Ozæna (*Virchow's Archiv*, 1881); his researches on the Relation of the Cortical Substance of the Brain to the Larynx and Pharynx (*Archiv für Physiologie*, 1883); his experimental investigations on the Contraction of the Muscles Acting on the Vocal Cords (*Virchow's Archiv*, 1884); his work on the use of Lactic Acid in Laryngeal

Phthisis (*Berlin. klin. Wochenschrift*, 1885); his highly suggestive remarks on Functional Disturbances of the Larynx in Diseases of the Central Nervous System (*Archiv für Psychiatrie*, 1886); his essays on the Early Symptoms of Lupus and Tuberculosis of the Pharynx (*Berlin. klin. Wochenschrift*); his philosophical paper on Reflex Nasal Neuroses, and his Experimental Investigations on the Trigeminus (*Deutsche med. Wochenschrift*), have attracted the attention not only of laryngoscopists, but of all scientific physicians.

That in calling in Dr. Krause I had selected the most able representative of the laryngological specialty in Berlin is proved by the fact that the medical advisers of the Emperor William, when they sent another laryngologist to San Remo, did not choose one from Berlin, but summoned a physician from Frankfort.

I can speak of Prof. Krause as a practical physician in the highest terms, having had the advantage of being associated with him for many months. His careful clinical observations, his conscientious anxiety to do the best for his patient, his gentleness in the sick-room, formed a remarkable contrast to some of his German colleagues, and I shall always feel indebted to him for his valuable co-operation under most trying circumstances. I am happy to be able to say that the Emperor thanked me on more than one occasion for having recommended Prof. Krause to him.

The Evidence: Dr. Moritz Schmidt's Report.

This document is of no scientific value, for it is based on the mythical observations of Landgraf, and has not even the merit of being a truthful report of what took place at San Remo whilst Dr. Moritz Schmidt was there. At the urgent desire of Dr. Schmidt, Prof. von Schrötter and I agreed that large doses of iodide of potassium should be administered, the ground for the use of this medicine being Dr. Schmidt's theory that the Crown Prince was suffering from a chronic contagious disease. Nevertheless Dr. Moritz Schmidt *after his visit to Berlin and his conference with von Bergmann*, had the audacity to say that, "considering the gradual development of the disease since the 10th of March, the age of the patient and the laryngoscopic appearances, I could only regard the malady as one of perichondritis developed through carcinoma."* The man who at San Remo strongly urged that the disease might be of an enthetic character, after his journey to Berlin could only regard it as quite a different complaint! As if, however, to prove that he knew nothing whatever about cancer of the larynx, Dr. Schmidt has gone out of his way to say that "the course of the disease from the beginning to the end appears to have been a usual and typical one."†

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* *Op. cit.*, p 42.

† *Op. cit.*, p. 43.

Now everyone knows that the disease ran a most exceptional course. Even if the separation of sloughs and the complete healing of the resulting ulcers were not very unusual features, the destruction of the whole of the larynx, with the exception of a portion of the epiglottis, is a thing absolutely unknown in medical literature. I challenge Dr. Moritz Schmidt to produce a single recorded case in which the *post-mortem* appearances were the same as those described by Virchow on the 16th of June, 1888.

The Evidence: Reports of Profs. Kussmaul, Waldeyer and Bardeleben.

These call for no comment as they contain no controversial matter. Prof. Kussmaul's report confirms my statement that the only use of his visit to San Remo was to disabuse Bergmann's mind of an *idée fixe* which possessed him that cancer of the larynx is always complicated by cancer of the lungs. Prof. Waldeyer's report embodies the results of the careful microscopical examinations which led him to pronounce the disease to be cancer. Prof. Bardeleben's notes are little more than a diary of the clinical events whilst he was in attendance.

The Evidence: Dr. Bramann's Report.

Dr. Bramann does not seem to have been allowed to write a separate report, but his observations and experiences are apparently contained in communications to Prof. von Bergmann. The principal object of his letters appears to be to set himself right with that surgeon, and to show that he was obliged to operate before he arrived. At the time of my visits to San Remo, I was not aware that Dr. Bramann was laboring under the misconception that he he had come to San Remo to act as a consultant with me. I thought that he knew that he was staying there solely as von Bergmann's assistant to do tracheotomy if that surgeon could not arrive in time. When a physician is treating a case of laryngeal disease accompanied by dyspnœa, and when he does not intend to perform tracheotomy himself, he sends for the surgeon when he thinks the time has arrived or is nearly approaching for opening the windpipe. Of course the surgeon has a perfect right to refuse to do the operation if he thinks that it is unnecessary. Thereupon the physician either yields to the views of the surgeon or calls in another operator. The position which von Bergmann's assistant has taken up, appears to be that when a physician is treating a case a surgeon is to be called every day or every other day to inform the physician when he considers it necessary to open the windpipe. Such an attitude is entirely novel, and in practice would be attended with difficulties which need not be discussed here. According to Dr. Bramann's own statement, he received much of his knowledge regarding the state of the Crown Prince from the equerries in His Imperial Highness's suite. Dr. Bramann had the privilege of meeting these officers at a "Grog," which was held every evening at nine o'clock in the reading room of the Hôtel Méditerranée. As the "clinical observations" of these military gentlemen appear to have been the basis on which Dr. Bramann has founded a large portion of his reports to Berlin, it is unnecessary to refer any further to his statements.

SECTION III.—STATISTICAL.

CHAPTER XXVI.

RESULTS OF RECORDED OPERATIONS.

Statistics Sometimes Illusive, but not in this Instance.

The paradox that "there is only one thing more misleading than facts, and that is figures," is accepted by many, and no doubt it has a certain amouut of truth for its basis. Facts can sometimes be so distorted, and figures so manipulated, that very misleading conclusions may be obtained. Fallacies are very likely to creep in in dealing with large masses of figures, especially when the problems are complicated. Again, statistics are often collected by persons whose competence to make the necessary observations on which those statistics are based is by no means assured. Hence, under certain circumstances, it is obvious that the accumulations of cases, instead of facilitating comparison, may render more obscure the questions which they are intended to elucidate.

None of these objections, however, is applicable to the tables which are now brought under notice. The questions at issue are *simple*: viz., the duration of life after different kinds of operations on the larynx; the reporters (in most cases the surgeons who have themselves performed the operations) are *competent*. There are only two sources of fallacy; one, that whilst surgeons nearly always report their successful cases, they do not invariably record those which terminate in death a few hours after an operation. Hence statistics of operations generally show more favorable results than the real facts justify. The other source of fallacy lies in the difficulty of making an absolutely correct diagnosis even with the aid of the microscope. In the recent German pamphlet, Prof. von Bergmann (page 21) has attempted to ridicule the microscope as an aid to accurate diagnosis, or, indeed, as furnishing a mode of investigation which can in any way determine the kind of treatment to be adopted. Although this line of argument has been pushed to an absurd extreme, it is possible that the microscope does not always afford an absolute proof of the nature of the disease, even when the entire growth is submitted to examination; and it is to be feared that in some cases patients have been inadvertently subjected to needless mutilation through the removal of a part or the whole of a larynx on account of the presence of growths which were not really malignant. I myself know of two cases in which surgeons removed the entire larynx without even taking the precaution to ascertain the nature of the disease by previously removing a portion endolaryngeally, and in both these cases the extirpated larynx was found to be free from malignant disease!

To make these tables still more valuable there ought to be a fourth one, showing the duration of life of patients who have been affected with cancer of the larynx, and who have not had any radical operation performed on them. Tracheotomy performed for cancer has not hitherto been considered a sufficiently interesting operation to be placed systematically on record, and the poor patient who gradually declines without any operation is also not considered to possess interest enough to have his case reported. Hence cases of cancer which have merely undergone tracheotomy, or have died without surgical treatment of any kind, do not generally appear in medical literature. The point at issue is: Does an external operation, and especially thyrotomy (*laryngofissur*) afford a reasonable prospect of effecting a cure, or of extending the duration of life for a longer period than leaving the patient alone until tracheotomy becomes necessary, if indeed tracheotomy should be required? And in considering the question of radical operations, it is important to bear in mind, as just remarked, that, in many cases of cancer of the larynx, even tracheotomy can be dispensed with. The patient gradually gets weaker as the disease advances, and a large number of patients die without the necessity for tracheotomy arising. It need scarcely be pointed out that if this operation can be avoided, the euthanasia is greatly promoted. Hence in considering the question of performing the various more or less dangerous radical operations, it must not be considered that the comparison is invariably to be made between one of these operations and a late tracheotomy. The question really is, in many cases, between a radical operation and no operation at all.

In dealing with the particular case under consideration, the main discussion must take place in connection with the question of thyrotomy, as that is the operation which von Bergmann alleges he intended to perform. In the published cases (see Table 1, p. 266) in which thyrotomy was performed for cancer, the *immediate mortality* has hitherto been 27·2 per cent. The recurrence has been at the rate of 54·54 per cent. in those cases where the patient survived the operation, but if four of the immediately fatal cases had lived for a few months and the recurrence had been in the same proportion in these cases as in the others, the rate of recurrence would have been nearly 70 per cent. It should be mentioned also that in several of the cases where the patients lived for a few months, they had to wear a tracheotomy tube from the day of the operation to the day of their death; they were, therefore, in a much worse condition than if tracheotomy had been postponed to a late period of the disease. Only those who have witnessed all the attendant discomforts of tracheotomy can realize what this means. A canula worn on account of a stenotic cicatrix is of comparatively little inconvenience, but a tube worn where there is a broken down malignant growth in the larynx is often very distressing. In considering the question of thyrotomy, it must not be forgotten also that if the operation is not successful, and *only two cases have ever been reported in which the operation has been successful* (viz., cases 10 and 17, Table I.), the disease is aggravated by the operation, more rapid development takes place, and the patient dies much sooner than if no operation had been done. It will be seen, therefore, that by thyrotomy, not only are a certain number of patients killed directly by the operation, but in nearly every case life is considerably shortened by that operation, whilst the conditions of existence during that shorter period of remaining life are much less pleasant to the patient than if no operation had been done. Against this we have the chance of a cure. But what a chance! It is said that the prospects of recovery are almost 10 per cent., because out of twenty-two recorded cases two patients recovered, but there is every probability that if the twenty-two cases were made up to one hundred by further operations, no other cures would be found.

In considering the question of *success*, *no patient suffering from malignant disease can be considered cured unless the patient lives at least two years* after the operation*, because that is the length of time a patient may expect to live without an operation. But such is the fell nature of cancer, that it often returns even after two years, and some of the highest living authorities go so far as to say that if the disease does not come back it proves that it was not cancer for which the operation was done.

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* *Three* years is now the time accepted by surgeons in dealing with cancer of the tongue.

The advantages and disadvantages of each method may be put in parallel columns:

Palliative Treatment (including Tracheotomy).	Radical Treatment (Thyrotomy).
Life is preserved under almost normal conditions for at least one year; and in a less favorable state for at least one year longer, *i. e.*, altogether for two years.	**Life is sacrificed at once** as the result of the operation in **27·2 per cent. of cases**; whilst in over 54·54 per cent. **death is hastened** owing to the greater activity of the morbid process set up by the operation; and in these cases the condition of existence is rendered less favorable by the premature use of a tracheotomy tube, necessitated by unsuccessful thyrotomy. **A complete cure has been twice obtained.** These cases are **No. 10** and **No. 17, Table I.**

A few remarks are necessary in connection with the following tables, which are based on my own (*Brit. Med. Journal*, April 26, and May 3, 1873), those of Norris Wolfenden (*Journal of Laryngology*, vol. i, December, 1887; vol. ii, January and May, 1888), Hahn (*Berliner Klinische Wochenschrift*, No. 44, p. 919, 1887), and Scheier (*Deutsche Med. Wochenschrift*, 7th June, 1888). I have included the following six cases of Billroth which Scheier seems to have overlooked, viz., four cases of thyrotomy, table I, Nos. 6, 8, 9 and 10, and two cases of total extirpation, table III, Nos. 21 and 24 (*Archiv. für Klinishe Chirurgie*, vol. xxxi, p. 848). I have also added one case reported by Studenski of Kasan (Russia) (*Centralblatt für Laryngologie*, June, 1885, p. 398), two cases reported by Dr. Baratoux (*Progrès Médical*, 1888), and five cases supplied to me by Dr. Pelechin, Professor of Surgery at the Imperial Academy (Petersburg).

My table was originally published fifteen years ago to show the results of thyrotomy in cases of growth in the larynx, whether malignant or benign. In the present summary, however, of course the benign cases have been excluded. In the same way from Hahn's and Scheier's tables, all cases of benign disease, cicatrices, etc., have also been omitted.

TABLE I.—THYROTOMY (*Laryngofissur*).

The operation Prof. Bergmann says he intended to perform.—This table refers to the operation which von Bergmann says (*op. cit.*, p. 19) he intended to perform, and which he affirms (p. 20) "does not threaten life."

No. of Case.	Operator.	Age of Patient.	Date or Reported.	Disease.	Subsequent History.
1	Gordon Buck...	51	1851	Carcinoma.	**Death** in 15 months, *a second operation having been necessary.*
2	Sands	30	1855	"	**Death** from recurrence 22 months after operation.
3	Gibb and Holthasse.	29	1864	"	**Death** in 1 year, recurrence having taken place at 4th month.
4	Schrötter	63	1869	"	**Death** in 11 days of erysipelas and gangrene, growth not extirpated.
5	Mackenzie and Wordsworth.	47	1869	"	**Death** in 7 months, recurrence in 2 months.
6	Billroth	56	1870	Epithelioma?	**Death** on 7th day; diagnosis corrected *post-mortem* as laryngeal tuberculosis.
7	Mackenzie and Thornton.	24	1872	Carcinoma.	**Death** in 7 months, recurrence in 4 months.
8	Billroth	36	1874	"	**Death** in 8 months. **Recurrence** took place in 1 month when total extirpation was performed. See table III., No. 1.
9	Billroth	26	1880	"	**Death** from hemorrhage on 13th day, total extirpation having been done on 3d day for **Recurrence**. See table III., No. 24.
10	Billroth	45	1881	Carcinoma.	**CURE.** Well 3 years after.
11	Studenski, Kasan (Reporter).	56	1883	"	**Death** 8 months afterward.
12	Solis-Cohen	63	1884	Epithelioma.	**Death** in 19 months, recurrence in 3 months.
13	Hahn...........	51	1884	Carcinoma.	**Death** by suicide; the patient hanged himself in despair when recurrence took place.
14	Billroth	66	1885	"	**Death** 18 hours after operation of œdema of the lungs.
15	Billroth	40	1885	"	**Death** 10 days after operation of pyæmia.

TABLE I.—*Continued.*

No of Case	Operator.	Age of Patient.	Date or Reported	Disease.	Subsequent History.
16	Billroth	63	1885	Carcinoma.	***Recurrence** in 13 months, date of death not given. Total extirpation declined.
17	Billroth	41	1885	Epithelioma.	**CURE.** No recurrence 2 years and 9 months after operation.
18†	Salzer	41	1885	Carcinoma.	No recurrence in 3 weeks.
19	Hahn...........	37	1886	"	**Recurrence** in 5 weeks.
20	Cohn	37	1887	"	**Recurrence** in 3 months in same site.
21†	Stewart	45	1887	Epithelioma.	No recurrence in 4 weeks.
22	Hahn...........	64	1888	Carcinoma.	**Death** on 11th day after operation, attributed to heart failure.

* The disease being cancer all cases of *recurrence* might be entered as *death* (with or without a second operation).

† Except as showing that the operation was not immediately fatal, these two cases have no statistical value.

ANALYSIS OF TABLE I.

Death, it will be seen, took place in six cases as the immediate* result of the operation,* in one instance in 18 hours, in one in 7 days, in another in 10 days, in two instances in 11 days, and in one in 13 days. **The immediate mortality was therefore 6 in 22 cases, or 27·2 per cent.** In the remaining cases the operation was successful twice. Five patients died within the year, whilst 3 lived respectively 15 months, 19 months, and 22 months. In three cases the patient had to submit to a second operation!

Recurrence is known to have taken place in 12 cases out of 22, or 54·54 per cent., more than half the cases; but if we allow for the same rate of recurrence in the cases which terminated immediately in death as in those which survived for a short time, the rate of recurrence would be nearly 70 per cent., or if, as is probable, recurrence took place in Studenski's case, the rate would have been almost 74· per cent.

Success took place in 2 out of 22 cases, or, in other words, in 9·09 per cent. **These are the only successful cases which are known to have followed the operation of thyrotomy.**

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* Deaths occurring *within six weeks of the operation* are considered as due to the operation itself, and are therefore called *immediate.* Such cases, however, it will be seen, usually terminated much more quickly.

As already remarked (p. 264), there is every reason to believe that if the 22 cases were made up to 100 by further operations no additional cures would result. The percentage of cures would be only 2, represented by **the two successful cases which have ever occurred.**

TABLE II.—PARTIAL EXTIRPATION OF THE LARYNX.

A less unfavorable operation.—This is the operation which, bearing in mind Prof. von Bergmann's admission (*op. cit.*, p. 21), he would probably have found it necessary to perform.

No. of Case.	Operator.	Age of Patient	Date of Operation or Report.	Disease.	Subsequent History.
1	Billroth	50	1878	Epithelioma.	**Death** in 16 months, recurrence took place in 6 months.
2	Reyher	57	1880	Carcinoma.	No relapse in 14 months.
3	Billroth	65	1881	"	**Death** 5 weeks after operation, sepsis.
4	Schede	42	1882	Epithelioma.	Still living 17 months after.
5	Skliffkowski ...	47	1882	Carcinoma?	***Recurrence** in 3 months.
6	Wagner	53	1883	"	**Death** on 12th day after operation.
7	Hahn..........	54	1883	"	**Death** in 16 months after second operation rendered necessary by recurrence.
8	Billroth	60	1883	Epithelioma.	**Death** in 5 weeks after operation.
9	Billroth	60	1884	Carcinoma.	Alive 3 months after, but obliged to wear canula.
10	Billroth	58	1884	"	**Death,** recurrence having taken place in 7 weeks afterward invading glands.
11	Billroth	46	1884	"	†Reported cured in 6 weeks.
12	Hahn	53	1884	"	**Death** in 4 days of pneumonia or mediastinitis.
13	Stoerk	..	1885	Epithelioma.	Alive in November, 1887.
14	Bergmann	46	1885	Carcinoma.	Alive in 1886.
15	Billroth	..	1885	"	Result unknown.
16	Salzer	65	1885	"	**Death** in 5½ weeks of pyæmia.
17	Salzer	60	1885	"	**Death** in 6 weeks of pneumonia.
18	Salzer	58	1885	"	**Recurrence** in 7 weeks.
19	Salzer	41	....	Epithelioma.	**Recurrence** in 2 months.

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*The disease being cancer all cases of *recurrence* might be entered as *death* (with or without a second operation).

† "Cured in 6 weeks" has no meaning except that the patient was not killed by the operation.

TABLE II.—*Continued.*

No. of Case.	Operator.	Age of Patient	Date of Operation or Report.	Disease.	Subsequent History.
20	Pick	..	1886	Carcinoma.	**Death** in 10 weeks after operation.
21	Socin	56	1886	"	**Death** in 13 weeks, a second operation became necessary 3 weeks before death.
22	Hahn	68	1886	"	**Death** on 11th day.
23	Hahn	52	1886	Epithelioma.	**Cure.**
24	Butlin	50	1886	"	Living 5 months afterward.
25	Lennox Browne,	61	1886	"	**Death** in 13 months.
26	Kraske	..	....	Carcinoma.	**Recurrence** in 16 months.
27	Kraske	..	....	"	**Recurrence** in 4 months.
28	Mickulicz	..	....	"	Living a year after operation.
29	Péan	53	1887	Epithelioma.	*DEATH on 15th day of strangulated hernia, **Recurrence** had taken place.
30	Hahn	43	1887	"	**Death** on 15th day.
31	Simanowski	..	....	Carcinoma.	Living one year afterward.
32	Hahn	36	1887	"	No recurrence in 5 weeks.
33	Rushton Parker,	39	1887	Epithelioma.	**Death** 4 months afterward.
34	Multanowski	47	1882	Carcinoma.	**Recurrence** in 3 months.
35	Hahn	42	Feb. 1888	"	†Subsequent tracheotomy; glands much enlarged.

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* Although this patient died fifteen days after the operation it is not included among the deaths immediately resulting from this procedure At the same time it is by no means uncertain that the coughing following the operation was not the real cause of the hernia becoming strangulated.

† Personal information from Berlin correspondent, 28th of July, 1888.

ANALYSIS OF TABLE II.

This table shows that of thirty-five operations fifteen proved fatal, that is 42·85 per cent.

Death, it will be seen, took place as the immediate result of the operation in eight cases, in one instance on the fourth day, in one on the eleventh day, in another on the twelfth day, in one on the fifteenth day, twice in five weeks, in one case in five and a half weeks, and in one in six weeks. **The immediate mortality was, therefore, 8 in 35 cases, or 22·85 per cent.** In the remaining cases, where death had occurred at the time the report was published, the fatal issue took place: once in 7 weeks, once in 10 weeks, once in 13 weeks, once in four months, once in 13 months, and twice at the end of 16 months. In the remaining cases no details are given, or the patients were living at the time the report was issued. One patient, as seen below, has lived 2 years.

Recurrence is only reported to have taken place in nine cases, but there is no information in many of the cases on this point. One case (No. 4) is described as still living; in another (No. 10) the patient was still "obliged to wear the canula," showing either that there was incomplete removal of the growth at the time of the operation, or that immediate recurrence took place. Another case is reported as cured at the end of 6 weeks, which merely means that the patient did not die from the immediate effects of the operation. In another case (No. 15) the result is "unknown;" in fact, in this table the actual rate of recurrence cannot be determined. It is probable, however, that recurrence does not take place nearly so frequently after this operation as in the case of thyrotomy, because partial extirpation affords much more favorable conditions for removing the entire growth than is obtained by simple thyrotomy.

Respecting case No. 35, I heard on July 28, 1888, from a Berlin correspondent, that the patient operated on by Dr. Hahn in February was readmitted to hospital on April 7 with great dyspnœa. Tracheotomy had to be performed. The glands on both sides of the neck were said to be much swollen.

Success* occurred in one case (No. 23) out of 35 cases, or 2·85 per cent. This operation will probably be found to be much more successful than simple thyrotomy for the reasons just stated in dealing with the subject of recurrence.

TABLE III.—TOTAL EXTIRPATION OF THE LARYNX.

An operation which, when not immediately fatal, leaves the patient in a state of abject misery. This is one of the operations brought under the consideration of the Crown Prince in November, 1887.

No. of Case.	Operator.	Age of Patient.	Date of Operation or Report.	Disease.	Subsequent History.
1	Billroth	36	1873	Carcinoma (recurrent).	**Death** in 7 months; recurrence took place in 1 month. See table I., No. 8.
2	Heine	50	1874	"	**Death** 6 months after from recurrence.
3	Maas	57	1874	"	**Death** 13 days after op. pneumonia.
4	Schmidt	56	1874	Epithelioma.	**Death** on 4th day; collapse.

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* As already remarked (p. 264), by *success* is meant the survival for over 2 years.

TABLE III.—*Continued.*

No. of Case	Operator.	Age of Patient.	Date of Operation or Report.	Disease.	Subsequent History.
5	P. H. Watson..	60	1874	Epithelioma.	**Death** in 2 weeks; pneumonia.
6	Schöntorn......	72	1875	Carcinoma.	**Death** on 4th day.
7	von Langenbeck.	57	1875	“	**Death** by collapse; recurrence in 4 months.
8	Multanowski ...	59	1875	“	**Death** in 3 months; pneumonia.
9	Multanowski ...	47	1875	“	**Death**, with recurrence in 2 months.
10	Billroth........	54	1875	“	**Death** on 4th day; pneumonia.
11	Maas	50	1876	Epithelioma.	**Death** in 6 months from recurrence.
12	Gerdes	76	1876	Carcinoma.	**Death** in 4 days; collapse.
13	Reyher	60	1876	“	**Death** on 11th day; pneumonia.
14	Watson	60	1876	Epithelioma.	**Death** in 7 days.
15	Kosinski.......	36	1877	“	**Death** in 9 months; pneumonia.
16	Wegner	52	1877	“	No recurrence in 8 months.
17	Landerer	45	....	Carcinoma.	**Death** 4 months after recurrence and secondary deposits.
18	Bottini	48	1877	Epithelioma.	**Death** 3d day; pneumonia.
19	von Bruns	54	1878	“	**Death** 9 months after recurrence.
20	Billroth........	43	1879	“	**Death** 7 weeks after.
21	Billroth........	60	1879	Carcinoma.	**Death** 3d day; pneumonia.
22	Macewen	56	1879	“	**Death** 3 days after; pneumonia.
23	von Langenbeck.	78	1879	“	**Death** in 3 days; collapse.
24	Billroth	26	1880	“ (recurrent).	**Death** from hemorrhage on 9th day. See table I., No. 9.
25	Multanowski ...	60	1879	“	**Death** in 5 days; pneumonia.
26	Reyher	48	1880	“	**Death** on 7th day; pneumonia.
27	Thiersch	36	1880	“	**Death** in 18 months, after second operation for recurrence.
28	Thiersch	52	1880	“	**CURE.** Was living 3½ years after.
29	Czerny	47	1880	Epithelioma.	**Death** in 5 months; recurrence.
30	Thiersch	45	1880	Carcinoma.	**Death** 19 weeks after operation.
31	Hahn	68	1880	? Cancroid.	No recurrence 11 months after.
32	Bohmer.........		....	Carcinoma.	**Death** in 12 hours; œdema of lungs.
33	Hahn	53	....	“	**Death** in 4 days; pneumonia and mediastinitis from pushing canula into mediastinum.
34	Bircher	49	1880	....	**Death** in 16 days of pneumonia.

TABLE III.—*Continued.*

No. of Case	Operator.	Age of Patient.	Date of Operation or Report.	Disease.	Subsequent History.
35	Hahn	68	1880	Carcinoma.	**CURE.** No recurrence in 1888.
36	Hahn	46	1881	"	**Death** on 25th day; gangrene of lungs.
37	Toro	--	1881	Epithelioma.	**Death** in 4 days; pneumonia.
38	Pick	39	1881	"	**Death** on 5th day; pleuro-pericarditis.
39	Thiersch	57	1881	Carcinoma.	**Death** 7th day; pneumonia.
40	Winiwarter	55	1881	"	**CURE.** Patient well in 1884, 3½ years after.
41	Czerny	47	1881	Epithelioma.	**Death** 10 months after from recurrence.
42	Reyher	57	1881	? Carcinoma.	**Death** 5th day; pneumonia.
43	Kocher	59	1881	? "	**Death** in 2 years from cancer of abdomen.
44	Tilanus	51	1881	Epithelioma.	**Death** in 36 hours; collapse.
45	Gussenbauer	48	1881	"	**CURE.** Living in 1886.
46	Voelker	44	1881	Carcinoma.	**Death** in 5 months from recurrence.
47	Albert	45	1881	"	**Death** 8th day; pneumonia.
48	Hahn	46	1881	"	**Death** 25th day; bronchitis.
49	Marjary	36	1881	"	**Recurrence** in 3 months.
50	Gussenbauer	62	1881	Epithelioma.	No recurrence in 14 months.
51	Gussenbauer	63	1881	Carcinoma.	**Recurrence** in 6 months.
52	Reyher	73	1881	"	**Death** 9 months after recurrence.
53	Novaro	63	1881	Epithelioma.	**Death** 5 months after second operation; recurrence took place in 4 months.
54	Schede	54	1881	Carcinoma.	**Death** by suicide at 7th month, recurrence having taken place
55	Chiarella	41	1881	"	**Recurrence** in 4 months.
56	Maurer	47	1882	"	**Death** 5 months after from recurrence.
57	Hahn	43	....	Epithelioma.	**Death** 14 months after; 9 secondary operations for recurrence had to be done.
58	Schede	54	1882	Cancroid.	**Death** by suicide in 8½ months, on recurrence.
59	Maurer	47	1882	Epithelioma.	**Death** from recurrence after 1 year.
60	Chiarella	52	....	Carcinoma.	**Recurrence** in 2½ years (?)
61	Sokotowski	62	....	"	**Death** 8 weeks after operation; pneumonia.
62	Chiarella	72	....	"	**Death** 8 months after.
63	Chiarella	65	....	"	**Death** 13½ months after operation from asphyxia.

TABLE III.—*Continued.*

No. of Case.	Operator.	Age of Patient.	Date of Operation or Report.	Disease.	Subsequent History.
64	Reyher	65	1881	Carcinoma.	**Death** 7th day from septic pneumonia.
65	Reyher	55	1882	"	**Death** 14th day from exhaustion.
66	Holmer........	57	1882	Epithelioma.	**Death** 7 months after from recurrence.
67	Kocher	54	1882	Carcinoma.	**Recurrence** in 7 months.
68	Whitehead	46	1882	Epithelioma.	No recurrence in 8 months.
69	von Bergmann.	54	1882	Carcinoma.	**Death** after recurrence in 8 months.
70	Burow..........	44	1882	"	**Death** from asphyxia 4½ months after.
71	Holmer........	63	1882	Epithelioma.	**Death** from recurrence 4½ months after.
72	Maydl..........	50	1882	Carcinoma.	No recurrence in 16 months.
73	Hahn	58	1883	"	**Death** in 4th week; purulent bronchitis.
74	Kocher	59	1883	"	No recurrence in 16 months.
75	Maydl	45	1883	"	**Death** 4th day from pneumonia.
76	Leisrink	72	1883	"	**Death** 4 months after from pneumonia.
77	von Bergmann.	..	1883	"	**Death** 4th day from pneumonia.
78	Hahn	52	1883	"	**Death** in 5 weeks from bronchitis.
79	Hahn	43	1884	"	**Death** from recurrence 15 months after.
80	Vogt	29	1884	"	**Death** 4 days after from pneumonia.
81	Hahn	53	1884	"	**Death** on 4th day of pneumonia.
82	Landerer	36	....	Adeno-carcinoma.	No recurrence in 18 months.
83	Hahn	52	1884	Carcinoma.	**Death** 3 months after from recurrence.
84	Novaro	72	1882	"	**Death** 1½ years after by feather blocking canula, no recurrence.
85	Winiwarter	46	1882	"	**Recurrence** 7 months after.
86	Winiwarter	50	1882	"	**Death** 9th week from inanition.
87	Gussenbauer ...	63	1883	Epithelioma.	**CURE.** Living in 1886, 3½ years after.
88	Novaro	52	1882	Carcinoma.	**Cure ?** Living in Oct., 1884.
89	Pretorius	54	1883	Epithelioma.	**Cure ?** Living in 1885.

TABLE III.—*Continued.*

No. of Case.	Operator.	Age of Patient.	Date of Operation or Report.	Disease.	Subsequent History.
90	Novaro	54	1883	Epithelioma.	**Death** in 1 month; pneumonia.
91	Kocher	..	1883	Carcinoma.	No local recurrence in 1884, but glands invaded.
†92	Jones, Th.	43	1884	Epithelioma.	Was well 6 weeks after operation.
93	Holmes	63	1884	“	**Death** from collapse in 48 hours.
94	Durante	..	1884	Carcinoma.	**Death** in two or three days.
95	Jordan Lloyd	51	1884	....	**Death** from pneumonia in 6 days.
†96	von Bergmann	46	1885	Epithelioma.	Reported cured in 6 weeks.
*97	Hahn	56	1885	Carcinoma.	**Death** on 10th day; bronchitis.
†98	Park	..	1885	“	Reported cured in 6 months.
99	Hahn	60	1886	“	**Death** on 12th day; pneumonia and erysipelas.
100	Morris	59	1885	“	**Death** from collapse in 4 days.
†101	Péan	35	1886	“	Reported cured, no dates given.
102	Labbé	51	1886	“	**Death** from pneumonia on 14th day.
†103	Mickulicz	..	1886	“	Reported cured in few weeks; no dates.
104	Hahn	51	1886	“	Discharged cured; recurrence and death probable. (Operator's note.)
105	Labbé	50	1886	Epithelioma.	**Death** from recurrence in 4½ months.
106	Mickulicz	..	....	Carcinoma.	**Death** from starvation; power of swallowing not restored.
†107	Axel Iverson	44	1883	“	**Death** 3 months after.
108	Kosinski	62	1886	“	**Death** in 8 weeks of pneumonia.
109	Axel Iverson	48	1884	Epithelioma.	Reported well 3½ months after.
110	Péan	65	1886	“	**Death** from broncho-pneumonia, date not given.
111	Newman	37	1886	“	No recurrence in 6 months.
112	Gardner	..	....	“	Living 4 months after operation.
113	Hogden	..	....	....	**Death** in 4 days.
114	Lange	30	1879	Carcinoma.	**Death** from septicæmia on 3d day.

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* Partial resection had been performed (see table II., No. 7); but recurrence having taken place total extirpation was performed with the above result.

† These cases are without value for statistical purposes, either having been reported too soon after the operation, or being too incomplete

TABLE III.—*Continued.*

No. of Case.	Operator.	Age of Patient.	Date of Operation or Report.	Disease.	Subsequent History.
115	Billroth	60	1879	Carcinoma.	**Death** from pneumonia in 3 days.
116	Billroth	26	1880	Epithelioma.	**Death** from hemorrhage 8th day.
117	Reyher	73	1882	Carcinoma.	**Death** from recurrence in 9 months.
118	Billroth	..	1887	"	**Death** same night attributed to syncope.
119	Dupont	52	1886	"	Alive 5 months afterward.
120	Chiarella........	54	1887	"	**Death** in 4 weeks from pneumonia.
*121	Stelzner	..	1887	"	Living 5 weeks after.
*122	Novaro	41	1887	Epithelioma.	Alive 3 months afterward.
*123	Novaro	72	1887	"	Alive 1 month afterward.
124	von Bergmann.	..	1887	Carcinoma.	**Death**; no date given.
125	Roswell	63	1886	Epithelioma.	Living 6 months afterward; no recurrence.
126	Schmiegelow ...	48	....	Carcinoma.	No recurrence in 9½ months.
127	Demons	57	1886	Epithelioma.	No recurrence 10 months after operation.
128	Gottstein	49	1884	"	**CURE.** No recurrence 3½ years after.
*129	Chiarella........	72	....	Carcinoma.	Reported well on 17th day, nothing more.
130	Hahn	37	1887	"	**Death** 4 weeks after operation; cause not stated.
131	Five cases communicated in a letter to the author dated Sept. 20, 1888, by Dr. Pelechin, Professor of Surgery in the Imperial Academy, Petersburg.	..	....	"	**Death** in a few days.
132		..	....	"	**Death** in a few days.
133		..	....	"	**Death** in a few days.
134		..	....	"	**Death** in a few days.
135		..	....	"	**Death** in 5 months.
*136	Gardner	62	1887	"	No recurrence in 6 months.
*137	Hutley	..	1887	Epithelioma.	
*138	W. T. Ball.....	..	1887	"	

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* These cases are without value for statistical purposes, either having been reported too soon after the operation, or being too incomplete.

ANALYSIS OF TABLE III.

Death took place in 36 cases in less than 9 days after the operation, and in 14 more within 5 weeks. **Death**, it will be seen, therefore, **occurred as the immediate result of the operation in 50 out of 138 cases, or in 36·23 per cent.**

In the remaining cases, where death had occurred at the time the report was published, the fatal issue took place once within 7 weeks, four times in 8 weeks, once in 9 weeks, three times in 3 months, four times in 4 months, once in 19 weeks, seven times in 5 months, twice in 6 months, three times in 7 months, twice in 8 months, five times in 9 months, once in 10 months, once in 12 months, once in 13½ months, once in 14 months, once in 15 months, twice in 18 months, once in two years, and in three cases the exact date of death is not given.

Recurrence is only known to have occurred in five cases in contiguous parts, and in one case (No. 91), it is said to have taken place "in the glands." Of course the removal of the entire organ tends to prevent recurrence. In one case (No. 104), the patient was discharged as having recovered from the effects of the operation, but the prognosis was so unfavorable that the operator notes recurrence and death as probable.

Success occurred in 8 out of 138 cases, or 5·79 per cent. This operation, it will be seen, affords little prospect of success, and the conditions of existence after its performance are so utterly miserable, the patient being almost completely cut off from intercourse with his fellow-beings, and having to take food in such a distressing way that suffocation is constantly imminent, and that death from starvation not unfrequently takes place.

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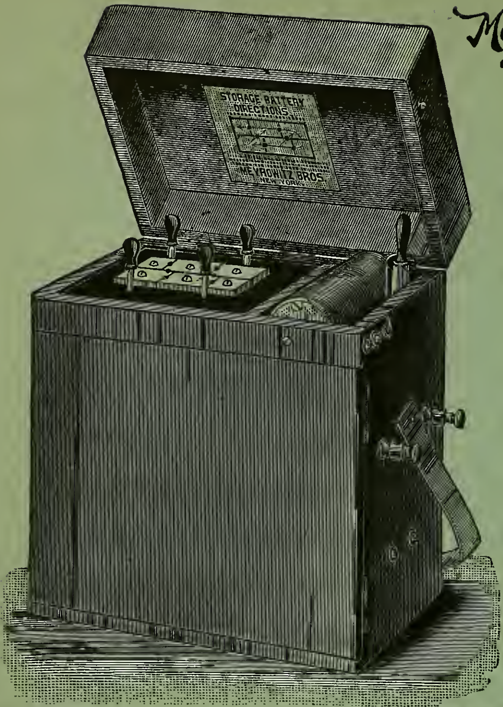

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